Compaq DECprint Supervisor (DCPS) for OpenVMS

System Manager's Guide

Order Number: AA–PSVEF–TE

June 2001

This manual describes how system maintainers (system managers, data center operators, and application programmers) with system privileges can create DECprint Supervisor print queues to provide printing services for the users of PostScript printers, customize the DECprint Supervisor printing system, and test the printing system. This manual also describes common problems with PostScript printing and how to solve them.

Revision/Update Information:	This guide supersedes AA–PSVEE–TE.
Operating System & Versions:	OpenVMS Alpha, Version 6.2, 7.2-1, or 7.3 OpenVMS VAX, Version 5.5-2, 7.2, or 7.3
Software Version:	Compaq DECprint Supervisor (DCPS) for OpenVMS, Version 2.0

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Houston, Texas

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The *DECprint Supervisor* documentation set is available on CD-ROM.

This document was prepared using DECdocument, Version 3.3-1b.

Contents

Preface xiii

1 DECprint Supervisor Overview

1.1 Purpose of the DECprint Supervisor Software 1–1
1.2 DECprint Supervisor Software Components 1–3
1.2.1 The Print Symbiont 1–4
1.2.2 Device Control Libraries 1–5
1.2.3 Translators 1–6

2 Setting Up Printers

2.1 Non-PrintServer Printers 2–1
2.1.1 Directly-Connected Serial Printers 2–2
2.1.2 Networked Printers 2–3
2.1.2.1 Raw TCP/IP Printers 2–3
2.1.2.2 LAT Printers 2–4
2.1.2.2.1 Configuring the Printer for LAT Access 2–4
2.1.2.2.2 Setting DECserver LAT Port Characteristics 2–5
2.1.2.2.3 Editing the LAT Configuration File 2–7
2.1.2.2.4 Setting the Communications Speed 2–8
2.1.2.3 AppleTalk Printers 2–9
2.1.3 General Information 2–9
2.1.3.1 Supported Printers 2–9
2.1.3.2 Setting the printer timeout 2–9
2.1.3.3 Changing the Printer Password 2–10
2.1.3.4 Setting the Printer Name 2–10
2.2 DIGITAL PrintServer Printers 2–11
2.2.1 Defining PrintServer TCP/IP Network Nodes 2–11
2.2.2 Defining PrintServer DECnet Network Nodes 2–11
2.2.3 Deleting the PrintServer Client Startup File 2–12

3 Creating and Modifying Print Queues

3.1 If You Are Installing the Software for the First Time 3–1
3.2 If You Are Upgrading From DECprint Printing Services Software (CPS) 3–1
3.3 Setting Up Execution Queues 3–2
3.3.1 Supplying the Name of the Execution Queue (P1) 3–3
3.3.2 Supplying the Printer Device Name (P2) 3–3
3.3.2.1 If Your Printer Is On a TCP/IP Network and Uses Raw TCP/IP Sockets 3–4
3.3.2.2 If Your Printer Is On a LAT Network or Directly Connected 3–5
3.3.2.3 If Your PrintServer Printer Is Part of a TCP/IP Network 3–6
3.3.2.4 If Your PrintServer Printer Is Part of a DECnet Network 3–6
3.3.2.5 If Your Printer Is Part of an AppleTalk Network 3–6
3.3.3 Supplying the Library Logical Name (P3) 3–7
3.3.4 Assigning Default PRINT Command Parameters to the Queue (P4) 3–7
3.3.5 Supplying Default Queue Attributes (P5) 3–8
3.3.6 Setting the Speed for Serial Printers (P6) 3–9
3.3.7 Supplying SET DEVICE Qualifiers to the Queue (P7) 3–9
3.3.8 Enabling SET VERIFY When Initializing the Queue (P8) . . . 3–10
3.4 Customizing Execution Queue Behavior 3–10
3.4.1 Running DCPS as a Multistreamed Process 3–10
3.4.1.1 Managing Print Queues When Running Multistreamed 3–11
3.4.1.2 Changing the DCPS Environment When Running Multistreamed 3–11
3.4.2 Interrupting Busy Printers When a Job Starts 3–12
3.4.3 Suppressing PostScript Synchronization When a Job Starts 3–12
3.4.4 Purging the Symbiont Process's Working Set 3–13
3.4.5 Suppressing the OPCOM Message "User Name Not Found" 3–13
3.4.6 Using Old ANSI Translator Page Size for A4 Landscape . . . 3–13
3.5 Setting Up Generic Queues 3–14
3.6 Activating Changes to the Queue Definitions 3–15
3.7 Testing the Printing System 3–16

4 Providing Automatic Data Type Detection

4.1 How DCPS Automatically Detects Data Type 4–1
4.2 Specifying Automatic Data Type Detection 4–1
4.2.1 Linking File Extensions with Data Types 4–2
4.2.2 Specifying Default Data Types for the System and Queues 4–3
4.2.3 How Users Control Data Type Detection 4–4

5 Manipulating Print Jobs and Print Queues

5.1 Displaying Print Job Status 5–1
5.2 Deleting a Print Job 5–2
5.3 Releasing a Print Job in the Holding State 5–3
5.4 Requeuing Print Jobs 5–3
5.4.1 Requeuing Pending Print Jobs 5–3
5.4.2 Requeuing the Currently Printing Job to Another Queue . . . 5–4
5.4.3 Requeuing Current and Future Print Jobs in a Queue 5–4
5.5 Modifying the Attributes of a Print Job 5–4
5.6 Displaying a Queue 5–5
5.7 Pausing a Queue 5–5
5.8 Starting a Queue 5–6
5.9 Modifying the Attributes of a Queue 5–7
5.10 Preventing Users from Printing to a Queue 5–7
5.11 Deleting a Queue 5–7
5.12 Responding to a Stalled Queue 5–8
5.13 Stopping and Starting the Queue Manager 5–9

6 Specifying Separation, Log, and Error Pages

6.1 What Are Separation Pages? 6–1
6.2 Enabling Job Separation Pages 6–2
6.2.1 Error Messages on the Trailer Page 6–3
6.2.2 Suppressing Job Trailer Pages 6–4
6.2.3 Specifying a Special Input Tray for Job Burst and Flag Pages 6–4
6.3 Enabling File Separation Pages 6–4
6.4 Adding a System Message to Separator Pages 6–6
6.5 Requesting Job Log Pages 6–6
6.6 The File Error Page 6–7

7 Creating Setup Modules and Device Control Libraries

7.1 What Is a Setup Module? 7–1
7.2 Locating Setup Modules 7–1
7.2.1 Locating Custom Setup Modules 7–2
7.2.2 Displaying the Contents of a Setup Module 7–2
7.3 Creating Custom Setup Modules 7–3
7.4 Creating Device Control Libraries 7–3
7.4.1 Putting Setup Modules in Libraries 7–4
7.4.2 Specifying a Library Search List 7–5
7.4.3 Device Control Libraries Must Exist for Queue to Start 7–7
7.4.4 Preserving Custom Setup Modules During Upgrades 7–7
7.5 Including Setup Modules in Print Job 7–7
7.6 Persistently Loading PostScript Resources 7–8
7.7 Changing the Default Character Set for PCL and Proprinter Print Jobs 7–9
7.8 Specifying Printer Resolution with Setup Module 7–11
7.9 Modifying DECimage Parameters with Setup Modules 7–11
7.10 Providing Access to Font Cartridge Emulation 7–13
7.11 Device Control Library Cache Feature 7–14
7.12 Printing on Unrecognized Printers 7–15

8 Creating and Maintaining Form Definitions

8.1 Associating Setup Modules with Forms 8–1
8.2 Associating a Form with a Print Queue 8–2
8.3 Creating Form Definitions for ANSI Files 8–3
8.4 Displaying Forms and Their Attributes 8–4
8.5 Deleting a Form 8–4
8.6 Using the Default ANSI Form Definition 8–5

9 Charging Users for Printer Resources

9.1 Accounting Information Supplied by the DECprint Supervisor Software 9–1
9.2 Accounting Information Supplied by the Job Controller 9–2
9.2.1 Accounting Fields Left Blank by the Job Controller 9–3
9.2.2 Accounting Fields Filled with Zeros by the Job Controller . . . 9–3
9.3 Compatibility with Mechanical Page Counters 9–4

10 Printer-Specific Information

10.1 Apple LaserWriter Plus Printer 10–1
10.1.1 LPS$PERSISTENT_RESOURCES Not Supported 10–1
10.2 Compaq Laser Printer LN16 and GENICOM microLaser 170 . . . 10–1
10.2.1 Printer Configuration Setting 10–1
10.2.2 LAT and AppleTalk Configuration 10–2
10.3 Compaq Laser Printer LN32 and LNM40; GENICOM LN21, LN28 and LNM40; GENICOM microLaser 210, 280, 320 and 401 10–2
10.3.1 Printer and Network Firmware Versions 10–3
10.3.2 Printer Configuration Settings 10–3
10.3.2.1 Language-Sensing Mode 10–3
10.3.2.2 Printer Setting May Cause Stalled Queues 10–3
10.3.3 LAT and AppleTalk Configuration 10–3
10.3.4 Queue Aborts When Using TCPware 10–4
10.4 DIGITAL Colorwriter LSR 2000 Printer 10–4
10.4.1 NIC Does Not Work with Raw TCP/IP 10–4
10.5 DIGITAL DECcolorwriter 1000 Printer 10–4
10.5.1 Printer-Specific Setup Files 10–4
10.6 DIGITAL DEClaser 3500 Printer 10–5
10.6.1 Job Remains in Starting State 10–5
10.6.2 Interaction Between Communication Protocol and Native PCL Support 10–6
10.6.3 NIC Does Not Work with Raw TCP/IP 10–6
10.7 DIGITAL DEClaser 5100 Printer 10–6
10.7.1 Native PCL Is Unavailable with EtherTalk Protocol on NIC 10–6
10.7.2 NIC Does Not Work with Raw TCP/IP 10–6
10.7.3 Downloading and Deleting Fonts 10–7
10.7.4 Error Page Feature 10–7
10.8 DIGITAL Laser Printer LN15+ 10–7
10.8.1 Printer Configuration Settings 10–7
10.9 DIGITAL Laser Printer LN17+ps 10–8
10.9.1 Job Remains in Starting State 10–8
10.9.2 Incorrect Sheet Count 10–9
10.9.3 Downloading and Deleting Fonts 10–9
10.9.4 Colored Separator Pages and Tray Switching 10–9
10.10 DIGITAL Laser Printer LN20 10–9
10.10.1 Incorrect Sheet Count 10–9
10.11 DIGITAL Laser Printer LN40 10–9
10.11.1 Incorrect Sheet Count 10–9
10.11.2 First Job May Be Offset Incorrectly 10–10

10.12 Compaq and DIGITAL Laser Printer LNC02 10–10
10.12.1 Minimum Firmware Version 10–10
10.12.2 Incorrect Sheet Count 10–10
10.13 DIGITAL PrintServer 17 Printer 10–10
10.13.1 Colored Separator Pages and Tray Switching 10–10
10.14 HP LaserJet IIID Printer 10–11
10.14.1 Job Remains in Starting State 10–11
10.14.2 Incorrect Sheet Count on Duplex Jobs 10–11
10.15 HP LaserJet IIISi Printer 10–11
10.15.1 Incorrect Sheet Count on Native PCL Jobs 10–11
10.15.2 Incorrect Sheet Count on Duplex Jobs 10–11
10.16 HP LaserJet 4SiMX Printer 10–12
10.16.1 Incorrect Sheet Count on Duplex Jobs 10–12
10.17 HP LaserJet 5M Printer 10–12
10.17.1 Problems Selecting an Input Tray 10–12
10.17.2 Incorrect Sheet Count on Duplex Jobs 10–12
10.18 HP LaserJet 5SiMX Printer 10–12
10.18.1 Job Trailer Pages Print in Next Bin 10–12
10.18.2 Tray Is Not Available Due to Lack of Memory for Loaded Paper 10–12
10.18.3 Duplex Not Supported Due to Lack of Memory for Loaded Paper 10–12
10.18.4 Incorrect Sheet Count on Duplex Jobs 10–13
10.19 HP LaserJet 4000, 4050 and 5000 10–13
10.19.1 Minimum Firmware Version 10–13
10.20 HP LaserJet 8000, 8100 and 8150 10–13
10.20.1 Optional Mailbox 10–13
10.20.2 Problems Starting Queues 10–13
10.20.3 Minimum Firmware Version 10–13
10.21 HP XL300 Printer 10–14
10.21.1 Communication Problem 10–14
10.22 Lexmark Optra Rt+ Printer 10–14
10.22.1 Tray Linking and INPUT_TRAY 10–14
10.23 Lexmark Optra S 10–14
10.23.1 Problems Starting Queues 10–14
10.24 Tektronix Phaser 10–14
10.24.1 Printer Configuration Settings 10–14

11 Troubleshooting Procedures

11.1 What to Do if a Serial Printer Is Not Printing 11–1
11.1.1 What to Do if a Locally-Connected Serial Printer Will Not Start Printing 11–2
11.1.2 What to Do if a Locally-Connected Serial Printer Has Stopped Printing 11–5
11.1.3 What to Do if a LAT Printer Is Not Printing 11–7
11.1.3.1 How to Determine Which Host Controls the Printer 11–7
11.1.3.2 How to Troubleshoot Printer Communications Problems 11–11
11.1.3.3 Common LAT Error Messages 11–11
11.1.4 How to Eliminate Excess Login Dialog on Serial Printers . . . 11–13
11.2 What to Do if a PrintServer Printer Is Not Printing 11–14
11.3 What to Do if Printing Is Slower than Expected 11–15
11.4 What to Do if Layup Definition Files Are Not Found 11–16
11.5 What to Do if Files Are Printed with Unexpected Results 11–16
11.5.1 What to Do if Default Queue Parameters Are Not Effective 11–16
11.5.2 What to Do if a File Data Type Is Not Recognized 11–17

A Printing System Management Commands

A.1 Overview of Management Commands A–1
A.2 Use of SET PRINTER with DCPS A–3

B Logical Names used by DCPS

C Downloading and Deleting Fonts

D DECprint Supervisor (DCPS) and DECprint Printing Services Software (CPS)

D.1 DCPS/CPS Coexistence D–1
D.2 Printer Support D–1
D.3 DCPS$ Prefix D–1
D.4 Startup File Converter D–2
D.5 Eliminating Generic Queues D–3
D.6 Page Scaling D–3
D.7 Layup for PS Level 2 Printers & Layup Fixes D–3
D.8 Layup Options on PRINT Command Line D–3
D.9 Page Sizes D–4

D.10 Selecting Separator Pages from Alternate Tray D–4
D.11 Stopping Unreachable PrintServer D–8
D.12 Overwriting First Line D–8
D.13 Stall Timeouts D–9
D.14 Requeuing a Job D–9
D.15 Reading Stream Files D–9
D.16 Copies Start on New Sheets D–9
D.17 Generic Queues Restarted D–9
D.18 Proprinter Translator D–9
D.19 DCPS and PATHWORKS Libraries D–10
D.20 Printing with Macintosh & PC Files D–10
D.21 Improved Color Function for Colormate PS D–10
D.22 Printing Security Messages D–10

E Ordering Additional Documentation

Index

Examples

3–1 Creation of an Execution Queue Entry for a PrintServer Printer 3–2
3–2 Creation of an Execution Queue Entry for a Serial Printer 3–3
3–3 Setting Up a Generic Queue 3–14
7–1 Search List for Device Control Libraries 7–5
8–1 Sample Form Definition, CONFIDENTIAL 8–1

Figures

1–1 DECprint Supervisor Software Components 1–4
6–1 A Job Burst Page 6–2
6–2 A File Flag Page 6–5

Tables

2–1	DECserver Port Characteristics	2–6
2–2	Printer-Required DECserver Port Characteristics	2–6
3–1	Raw TCP/IP Port Numbers	3–5
3–2	Parameter Values for Generic Queues	3–14
3–3	IVP Files with Different Data Types	3–16
5–1	Commands to Display Queues	5–5
7–1	Printer Resolution Setup Modules	7–11
7–2	Enabling and Disabling DECimage	7–12
7–3	DECimage Setup Modules—Combined Parameters	7–12
7–4	DECimage Setup Modules—Individual Parameters	7–13
8–1	DEFINE/FORM Qualifiers for ANSI Files	8–3
10–1	Valid LN21, LN28, LN32, LNM40, mL210, mL280, mL320 and mL401 Language Sensing Configurations	10–3
10–2	LN15 Configuration Settings	10–8
10–3	Tektronix Phaser Configuration Settings	10–14
A–1	Printing System Management Commands	A–1
A–2	SET PRINTER Qualifier Equivalents for DECprint Supervisor Queues	A–4
B–1	DCPS Logical Names	B–2
D–1	Tray Number Values	D–4

Preface

Intended Audience

This manual is for OpenVMS system managers and data center operators. Using this guide, you can create and modify print queues, maintain the print jobs and print queues, and set up printing environments to meet the needs of the printing system users.

This guide is also intended for advanced users and applications programmers who customize the printing system using form definitions, setup modules, and layup definition files. The *DECprint Supervisor for OpenVMS User's Guide* describes how users access the features of the printing system.

Be sure to read the *DECprint Supervisor for OpenVMS Software Installation Guide* if you have not installed the DECprint Supervisor software.

Associated Documents

For information about additional PostScript printing documentation and how to order documentation, refer to the Ordering Additional Documentation appendix in this manual.

Conventions

The following conventions are used throughout this document:

Convention	Meaning
UPPERCASE	Uppercase characters indicate DCL commands, qualifiers, and parameters.
italics	Italic characters in command examples indicate that you are to substitute a word or value of your choice.

Convention	Meaning
bold	Bold characters are PostScript operators or error message prefix strings. Bold in examples shows the characters that you should enter as part of the procedure.
[ ]	Brackets indicate that the enclosed item is optional.
Ctrl/*x*	This symbol indicates a control key sequence. Press the key labeled Ctrl while you simultaneously press another key, represented by *x*.
Return	This symbol indicates that you should press the Return key.

1

DECprint Supervisor Overview

1.1 Purpose of the DECprint Supervisor Software

The DECprint Supervisor software allows people to use and manage networked PostScript printers. For example, it allows users to:

- Print customized documents, print two-sided, and select input trays.
- Modify printed documents without changing the files that are printed, which saves paper and allows the production of custom printed documents.
- Print different types of files on the PostScript printers.
- Access printers from the OpenVMS VAX and Alpha operating systems and from personal computers (PCs) and Macintosh systems.

The system manager makes the printing system easier to use by providing:

- Default queue attributes, so users do not have to specify certain parameters, such as duplex printing
- Setup modules, which are stored in device control libraries and are used to modify the printing environment for print jobs
- Form definitions, specifying sets of print attributes and including setup modules to make them all easier for users to access
- Layup definition files, which you can create to customize the way print jobs are printed on the media

Note

Starting with DCPS V2.0, the need for DCPS-OPEN and DCPS-PLUS licenses has been eliminated. The right to use all features of DCPS is now included with the OpenVMS operating system license.

DCPS also provides the following features:

- **Document Formatting**

  - Change the size of pages as they are printed to fit the physical size of media, using the following command:

    ```
    $ PRINT/PARAMETERS=(PAGE_SIZE=n,SHEET_SIZE=m) file-spec
    ```

  - Specify page layup handling as the file is printed, using the following command:

    ```
    $ PRINT/PARAMETERS=(LAYUP=option=value)
    ```

  - Save paper, using one of the following commands:

    ```
    $ PRINT/PARAMETERS=(PAGE_LIMIT="n,m")
    $ PRINT/PARAMETERS=(NUMBER_UP=n)
    ```

  - Print multiple uncollated copies of each sheet via the SHEET_COUNT parameter.

  - Use device control modules for all data types via the /SETUP qualifier. ANSI modules may include control sequences. PCL modules may include binary font data.

- **Data Type Translation**

  DCPS lets users print additional file data types, including:

  - PCL 4 (Printer Control Language) files generated for printing on Hewlett-Packard LaserJet IID devices
  - Proprinter files generated for printing on IBM Proprinter XL24 devices
  - ReGIS graphics files (monochrome output only)
  - TEKTRONIX files, generated for printing on TEKTRONIX 4010/4014 devices
  - ASCII text files, to be printed with line numbers, page headers, and alternating groups of gray and white bars
  - DIGITAL Document Interchange Format (DDIF) bitonal image files

- **Automatic Data Type Detection**

  Users do not need to specify the data type of the print file, in most cases. DCPS recognizes files of the supported data types and automatically translates them to PostScript before printing.

DCPS can print files that contain both text (ANSI, PCL, or Proprinter data) and PostScript data. For example, users can print electronic mail messages that contain PostScript files. The user submits the print job without specifying any data type. The DECprint Supervisor software begins printing the file as text and automatically recognizes the change to PostScript, printing the file properly.

See Chapter 4 for information about customizing the printing system to recognize and print the files generated by users at your site.

1.2 DECprint Supervisor Software Components

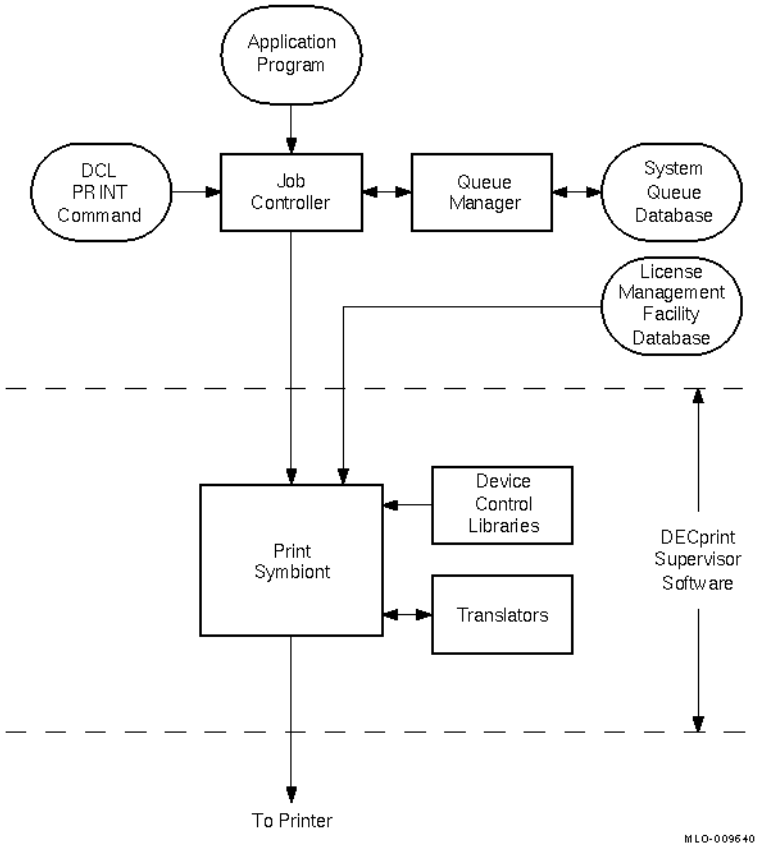
The DECprint Supervisor software includes the following components:

- A print symbiont, which processes print requests from OpenVMS print queues assigned to the printer
- Queue management services, as described in Chapter 5
- Data type translators to translate non-PostScript files for printing on PostScript devices
- A device control library for setup modules that affect the printing of files, as described in Chapter 7

The DECprint Supervisor symbiont is used in place of the OpenVMS print symbiont, PRTSMB. The software is distributed as executable image files, text, and help files.

Figure 1–1 illustrates the process by which print jobs are produced on an OpenVMS system and delivered to the printer.

Figure 1–1 DECprint Supervisor Software Components



The software components of a DECprint Supervisor printing system are described in the following sections.

1.2.1 The Print Symbiont

Users send jobs to the printer using the DCL PRINT command or using an application program that generates the OpenVMS system service call SYS$SNDJBC. The print symbiont manages the print jobs. The DECprint Supervisor software performs the following operations:

- Maintains resources
- Sends control data to the printer
- Sends the data file to the printer

- Monitors printer progress
- Reports printer status
- Handles exceptions

For example, suppose a user issues the following PRINT command:

```
$ PRINT/QUEUE=POST3/NOTIFY THORNTON.TXT
```

The PRINT command line is translated to system service calls, which are sent to the job controller. The calls are converted to job controller data structures, which are then passed to the symbiont for processing. The symbiont sends the processed arguments and file data to the printer and notifies the user by displaying messages about the status of the print job.

See the *DECprint Supervisor for OpenVMS User's Guide* for information about the PRINT command and its qualifiers.

1.2.2 Device Control Libraries

A device control library is an OpenVMS text library that contains setup modules. The symbiont uses modules from the device control library to implement the various PRINT parameters. The DECprint Supervisor software extracts the appropriate module, depending on the qualifier that either appears on the PRINT command line or is associated with a print queue, and inserts the module into the data stream.

The device control library also contains modules that the symbiont does not automatically use. Some of these modules contain PostScript procedures, for example, to include an error handler in a print job or to extend the **findfont** procedure to recognize alternate character encodings. These are described in the *DECprint Supervisor for OpenVMS User's Guide*.

You can create setup modules to be used on your own systems. When you create setup modules, you must store them in a device control library other than the DCPS$DEVCTL library. Create a device control library as described in Chapter 7 and add your library to the device control library search list defined in DCPS$STARTUP.COM.

When you create a site-specific device control library for your custom setup modules, the contents of your library are retained from one version of the DECprint Supervisor software to the next. The standard device control library, DCPS$DEVCTL, is overwritten when you upgrade from one version of the software to the next.

1.2.3 Translators

When a print job submits a print file that is not PostScript (or PCL, if your printer has a native PCL interpreter), the symbiont invokes a translator to translate the user's input file into PostScript. (Refer to Chapter 4 for more information about customizing the printing system for certain types of files.)

DECprint Supervisor software can detect the file data type automatically. You need not specify the data type on the PRINT command line. Translation to PostScript for successful printing is automatic. It is not necessary to maintain generic print queues for default data types.

The system manager can associate a default data type with a generic print queue, allowing users to print files by specifying the generic queue name. See Chapter 3 for more information.

If DCPS incorrectly identifies the data type of a file, you can identify the data type on the command line:

```
$ PRINT MYFILE.MEM /PARAMETERS=DATA_TYPE=ANSI
$ PRINT MYFILE.POST /PARAMETERS=DATA_TYPE=POSTSCRIPT
```

2
Setting Up Printers

If you are installing DECprint Supervisor for the first time, or installing new printers, read this chapter. You may also find this chapter useful if you are changing the setup of an existing printer. The following sections describe how to set up your printers to work with DECprint Supervisor software.

Non-PrintServer printers	Section 2.1
DIGITAL PrintServer printers	Section 2.2

Note

If you are changing the setup of a printer for which a DECprint Supervisor queue already exists, you must first stop the associated queue using the `STOP/QUEUE/NEXT` or `STOP/QUEUE/RESET` command.

2.1 Non-PrintServer Printers

You can connect PostScript printers other than DIGITAL PrintServer printers to your OpenVMS system in a number of ways:

- If your printer contains a network interface card (NIC) that supports the bi-directional raw TCP/IP, LAT, or AppleTalk protocol, you can communicate with your printer via the network.
- If your printer uses a serial connection, you can connect the printer directly to your OpenVMS system, or connect it to a print server or terminal server and communicate with it via the network.
- If your printer uses a bi-directional Centronics parallel connection, you can connect it to a print server or terminal server and communicate with it via the network.

If your printer is connected via the network, multiple systems can access it.

The devices that can be used with DECprint Supervisor software are listed in the Software Product Description (SPD).

Note

DCPS requires that the entire communication path between your OpenVMS system and your printer be bi-directional. For a networked printer, this communication path includes the connection between the printer and the network device as well as the connection between the network device and your OpenVMS system. LAT and AppleTalk network devices, and serial interfaces, usually provide bi-directional communication. Raw TCP/IP network devices, and parallel ports on a printer, terminal server, or print server, may not satisfy this requirement. The DCPS software will not work with a connection that does not allow status messages and other information to be sent from the printer to your OpenVMS system.

CSA0 (printer port 0 on VAXstation II and VAXstation II/GPX systems) is not a supported interface for serial printers.

DEClaser printers may require an H8571–E adapter if you are using a DECconnect serial cable. Refer to your printer installation guide for more information.

2.1.1 Directly-Connected Serial Printers

For your printer and OpenVMS system to be able to communicate, you must set the baud rate of your printer and system's serial interfaces to the same values. Also, your printer should be set for eight-bit characters with no parity.

Note

When choosing a baud rate other than the default of 9600 baud, consider the following limitations:

- OpenVMS drivers do not support baud rates of 3600 and 7200 baud.
- DMZ32 serial interfaces, Revision E or lower, require a speed of 4800 baud or less.
- If you select an improper speed, the printer may not operate or may stop unexpectedly.

Refer to your printer's hardware installation guide for information on configuring its serial interface. After you have made the necessary changes, turn the printer off and back on. Then manually print a test page and verify that the reported settings are as desired.

Set the baud rate of your OpenVMS system's serial interface by specifying a value for **P6** when setting up the corresponding DCPS print queue, as described in Section 3.3.6.

2.1.2 Networked Printers

Your printer may contain a network interface card (NIC) or may be accessable to the network via a print server of a terminal server.

Printers can be configured as network printers if:

- The printer is connected to a NIC, print server, or terminal server.
- Every host system using the printer is running DECprint Supervisor software. If any host system accesses the printer by any other means, the printer system may fail.

Network printing has the following implications:

- The printer may be used from multiple systems.
- There is no centralized accounting for the printer. Each system maintains separate accounting information for the printing performed by that system.
- Multiple systems running DECprint Supervisor software contend for the same printer.
- There is no centralized print queue for the printer, which means:
  - The SHOW QUEUE command does not display the queues located on other nodes in the network.
  - The system does not provide print job scheduling or load balancing among printers or nodes in the network.

2.1.2.1 Raw TCP/IP Printers

Raw TCP/IP is a network protocol that utilizes the TCP/IP protocol directly without any additional interpretation of the TCP data stream. It is supported by many printer Network Interface Cards (NICs), print servers, and terminal servers.

There are other printer protocols that layer upon TCP/IP, including CPAP (Common Printer Access Protocol), LPD, and Telnet. DCPS uses CPAP to communicate with DIGITAL PrintServer printers.

Note

DCPS does not support the Telnet or LPD protocols.

To communicate with your printer using raw TCP/IP, the NIC, print server, or terminal server that you use to connect your printer to the network must provide a raw TCP/IP port. Further, this raw TCP/IP port must support bi-directional communication between the printer and your OpenVMS system. DCPS does not work with unidirectional ports, such as those found on the NICs for the DEClaser 3500 and 5100 printers, the RapidPrint 200, and Hewlett-Packard JetDirect cards that interface with the printer via its XIO (versus MIO) slot.

Before you can communicate with your printer via TCP/IP, you must define an IP address for it. You may also assign a name to the address. Refer to the printer documentation for information on setting the printer's IP address. Refer to Compaq TCP/IP Services for OpenVMS, Process Software MultiNet for OpenVMS, or Process Software TCPware documentation for information on configuring your OpenVMS system's TCP/IP environment. If your printer is connected through a print server or terminal server, you must configure the IP address of the server. You also need to configure the connection between the printer and the server (for example, you may need to perform actions similar to those described in Section 2.1.2.2.2 for LAT printers). Refer to documentation for your terminal server or printer server for information on configuring its network and printer interfaces.

2.1.2.2 LAT Printers

2.1.2.2.1 Configuring the Printer for LAT Access To configure serial printers as network printers through a LAT connection to the Ethernet, change the following:

1. If you are using a serial printer connected via a terminal server, set the necessary port and server characteristics for the printer (see Section 2.1.2.2.2 for DECserver devices).
2. Make the necessary changes to SYS$STARTUP:LAT$SYSTARTUP.COM (see Section 2.1.2.2.3).
3. Set the communications speed (see Section 2.1.2.2.4).

You can also change the printer password and printer name. These changes are optional and explained in Section 2.1.3.3 and Section 2.1.3.4.

2.1.2.2.2 Setting DECserver LAT Port Characteristics

Note

The process for configuring non-DECserver LAT devices is not described here, but many LAT devices use the same commands used by a DECserver device. Refer to the online help or other documentation for your NIC, terminal server, or print server for more information.

To change DECserver port characteristics, you need privileged status on the DECserver device. Once you have privileged status, use the DEFINE PORT and SET PORT commands.

The DEFINE command changes the port's characteristics in the server's permanent database. These changes do not take effect until the next login for the port.

SET commands take effect immediately, but only alter the port's characteristics for the current session. For example, to change the INPUT SPEED and OUTPUT SPEED values on PORT_6 to 19200 baud (on a DECserver 200), issue the following commands from the console server manager:

```
LOCAL> SET PRIVILEGED
PASSWORD> password

LOCAL> SET PORT 6 SPEED 19200
LOCAL> DEFINE PORT 6 SPEED 19200
```

Note

DECprint Supervisor supplies a sample command file for this purpose, if using LAT. This command file sets the characteristics for a DECserver with the Terminal Server Manager (TSM) software, and records data in the TSM database. (TSM is a software product available separately from Compaq.) The command file is:

```
SYS$COMMON:[SYSHLP.EXAMPLES.DCPS]DCPS$CONFIG-PRINTER-PORT.COM
```

This command file provides examples of characteristics for DECserver 100, DECserver 200, and DECserver 500 devices.

For information about the commands and procedures for your DECserver device, refer to your DECserver management guide.

Make sure the DECserver port characteristics match the settings on your printer. Table 2–1 and Table 2–2 list DECserver port characteristics that must match the settings on your printer.

Table 2–1 DECserver Port Characteristics

Character size	8
Parity	None
Input speed	9600
Output speed	9600

Make sure the queue limit is not set to 0, which disables queuing.

Table 2–2 Printer-Required DECserver Port Characteristics

Characteristic	Default Settings
ACCESS	REMOTE
AUTOBAUD	DISABLED
AUTOCONNECT	DISABLED
AUTOPROMPT	DISABLED
BREAK	DISABLED
BROADCAST	DISABLED
FLOW CONTROL	XON
INPUT FLOW CONTROL[1]	ENABLED
OUTPUT FLOW CONTROL[1]	ENABLED
INACTIVITY LOGOUT	DISABLED
LOSS NOTIFICATION	DISABLED
MESSAGE CODES	DISABLED
QUEUING	ENABLED
VERIFICATION	DISABLED

[1]Characteristic not supported by the DECserver 500 server.

Note

On many versions of DECserver devices, QUEUING is not a port characteristic, but is a server characteristic whose default is ENABLED.

2.1.2.2.3 Editing the LAT Configuration File The LAT configuration file (SYS$STARTUP:LAT$SYSTARTUP.COM) defines host node service characteristics. Before you start the print queues, make sure the LAT driver is running and ports are available.

Note

Commands referenced in this section are LATCP commands. For more information on LATCP commands, refer to the *OpenVMS System Management Utilities Reference Manual*.

1. Edit LAT$SYSTARTUP.COM and add the following command to create an applications port on the host node (service node) that will support your printer:

   ```
   $ CREATE PORT LTAd:/NOLOG/APPLICATION
   ```

   In this command format, you supply the number of the applications port for *d*, which must be a unique number from 1-9999.

   Note

   LTA devices are not always dedicated to printers; they may be shared with other devices. Connections to the LTA device from the other devices are established dynamically among the lowest available ports. If you assign a higher port number to the printer, you can help secure the port for the printer and prevent interference from connections to other devices.

2. In LAT$SYSTARTUP.COM, add the following command to associate the applications port with a remote port on a server:

   ```
   $ SET PORT LTAd:/NODE=server_name/PORT=port_name/QUEUE/APPLICATION
   ```

In the command format, you supply the following values:

LTAd:	Name of the application port
server_name	Name assigned to the LAT device
port_name	LAT device's port name

The following example associates application port LTA9000: with port PORT_7 on a remote DECserver 200 named LN03RDS:

```
$ SET PORT LTA9000:/NODE=LN03RDS/PORT=PORT_7/QUEUE/APPLICATION
```

If the LAT device is dedicated to printing services, you can define the LAT connection for the printer in the DCPS$STARTUP.COM file. This makes it easier for you to solve configuration problems because all the information is in one file. However, if the LAT device also supports devices other than printers, you should define the port in the LAT$SYSTARTUP.COM file.

3. To make a successful LAT connection, you must make sure the following lists of groups have at least one LAT group in common:

   - On the LAT port, authorized groups and current groups
   - On the service node, enabled groups

   If you did not set up these groups correctly, you receive the following error message when a print job is submitted:

   ```
   %DCPS-E-LRJACCESSDENIED, Access denied
   ```

   You can use LATCP commands to include the necessary LAT group designations. For additional information, refer to the *OpenVMS System Management Utilities Reference Manual*.

   Note

   This information is not required for the DECserver 90L device.

2.1.2.2.4 Setting the Communications Speed Make sure the serial printer communications speed is set to the default (9600 baud). If you want the printer to run at a different baud rate, use the following procedure.

If the printer is on a DECserver device, use the following steps:

1. Set the printer to the appropriate baud rate (see your printer hardware installation guide).
2. Set the DECserver communications speed (see your terminal server installation guide).

3. Power on the printer. Wait for the printer to eject the power-up test page, and then check the test page to ensure that the desired settings are indicated on the test page.

2.1.2.3 AppleTalk Printers

If you use your printer in an AppleTalk network, the address of the printer in the AppleTalk network is normally the printer's PostScript printername. If two or more printers have the same printername and are on the same zone of the AppleTalk network, the actual node names for these printers will be depend on the order in which the printers are powered up. Printers of the same product type will have the same printername until it is explicity changed. Therefore, it is necessary to change a printer's printername to ensure the printer is uniquely and consistently identified on the network. Use the tools provided with your printer, and/or your PC or Macintosh to change the name of your printer.

2.1.3 General Information

2.1.3.1 Supported Printers

You can use DCPS with many PostScript printers. Consult the SPD for the list of supported by the DECprint Supervisor software. You may also be able to use DCPS in an unsupported fashion with printers not listed in the SPD (see Section 7.12).

Before installing a printer, perform the following:

- Install a PostScript option if your printer requires one.
- Install at least the minimum amount of memory for PostScript printing.

Printing legal size paper or printing duplex requires more memory than the base configuration. Consult your printer manual for your minimum requirements.

2.1.3.2 Setting the printer timeout

The printer may abort a print job if it does not receive data for a specified period of time. Compaq recommends that you change the timeout value to zero (0), which means no timeout.

You may be able to set the timeout value through the front panel, as documented in the operator's guide for your printer.

You can also change the printer timeout value with the **setdefaulttimeouts** PostScript operator. Modify the standard file SYS$COMMON:[SYSHLP.EXAMPLES.DCPS]LPS$SET_TIMEOUT.PS to change the timeout value to 0. Print the file using the DATA_TYPE=POSTSCRIPT parameter to change the timeout value in the printer's nonvolatile memory to 0, thus preventing timeout conditions on the printer.

To submit the file for printing as a PostScript job, use the following command:

```
$ PRINT/QUEUE=queuename/PARAMETER=(DATA_TYPE=POSTSCRIPT) LPS$SET_TIMEOUT.PS
```

When the print job is processed, a page is printed to indicate that the timeout was successfully changed.

2.1.3.3 Changing the Printer Password

PostScript printers have passwords that restrict access to certain functions. You can change the password for your printer from the default value. For serial printers, submit a print job that includes the current password as well as the new password. Refer to the *PostScript Printers Programmer's Supplement* for information about changing your printer's password.

The default password for ScriptPrinters is (LN03R), with the parentheses required. The default password for DEClaser printers is 0 (the number zero), without parentheses. If you change the printer password from the default, print jobs may take longer to print, because the printer password is required to persistently load PostScript prologues for ANSI files and separation pages.

2.1.3.4 Setting the Printer Name

Some system messages include the printer name. If you have not set a unique printer name, these messages contain the default printer name. The default printer name for a ScriptPrinter printer is LN03R. The default printer name for a DEClaser printer is DEClaser. For example, on a DEClaser printer where the name has not been changed, the following message reflects the default printer name:

```
%DCPS-I-TRAYSUBST, Output will be delivered to the only tray on DEClaser
```

If you change the DEClaser printer name to SNUFFY, the same error message reflects the unique new printer name:

```
%DCPS-I-TRAYSUBST, Output will be delivered to the only tray on SNUFFY
```

For non-PrintServer printers, the printer name is stored in the printer's nonvolatile memory. To set the printer name, edit a copy of the file LPS$SET_PRINTER_NAME.PS found in SYS$COMMON:[SYSHLP.EXAMPLES.DCPS] to include the desired name and password. Select a printer name of 31 characters or less.

Then submit the file for printing as a PostScript job:

```
$ PRINT/QUEUE=queuename /PARAMETER=(DATA_TYPE=POSTSCRIPT) -
LPS$SET_PRINTER_NAME.PS
```

Edit and submit a copy of LPS$SET_PRINTER_NAME.PS for each printer that requires a unique name.

2.2 DIGITAL PrintServer Printers

DIGITAL PrintServer printers are network printers. They require the OpenVMS DECnet, Compaq TCP/IP for OpenVMS, Process Software MultiNet for OpenVMS or Process Software TCPware for OpenVMS software to be running on the OpenVMS systems where the DECprint Supervisor software is running.

Note

Make sure that PrintServer Software is running on the PrintServer printer before starting DECprint Supervisor.

The following procedures allow users to access PrintServer printers on TCP/IP and DECnet networks.

2.2.1 Defining PrintServer TCP/IP Network Nodes

Before you can communicate with your DIGITAL PrintServer printer via TCP/IP, you must assign an IP address to it. You may also associate a name with the address.

Refer to the PrintServer documentation for information on setting the printer's IP address. Refer to Compaq TCP/IP Services for OpenVMS, Process Software MultiNet for OpenVMS or Process Software TCPware for OpenVMS documentation for information on configuring your OpenVMS system's TCP/IP environment.

2.2.2 Defining PrintServer DECnet Network Nodes

Before you can communicate with your DIGITAL PrintServer printer via DECnet, you must assign a DECnet address to it. You may also associate a name with the address.

Refer to the PrintServer documentation for information on setting the printer's DECnet address.

To associate a DECnet node name name with the printer's DECnet address, use the NCP command if you are running DECnet Phase IV software, or the DECNET_REGISTER command if you are running DECnet-Plus (formerly DECnet/OSI) software. Refer to the OpenVMS DECnet documentation for more information about node names and these commands.

2.2.3 Deleting the PrintServer Client Startup File

An existing LPS$STARTUP.COM file, if any, is no longer used and is not compatible with DECprint Supervisor. Delete this file after you edit DCPS$STARTUP.COM. To delete this file, follow this procedure:

Note

Delete all generic queues before deleting the execution queue.

1. Stop existing print queues with the STOP/QUEUE/RESET command.
2. Delete existing PrintServer print queues.
3. Add new print queues to DCPS$STARTUP.COM for PrintServer printers.
4. If you have any customized definitions in the LPS$STARTUP.COM file, copy the changes into SYS$STARTUP:DCPS$STARTUP.COM.
5. Edit SYS$MANAGER:SYSTARTUP_VMS.COM, removing the reference to SYS$MANAGER:LPS$STARTUP.COM.
6. Delete LPS$STARTUP.COM. You can delete this and other files that are no longer needed for PrintServer printing using the following command file: SYS$COMMON:[SYSHLP.EXAMPLES.DCPS]DCPS$DELETE-LPS-CLIENT.COM

3

Creating and Modifying Print Queues

This chapter explains how to start up the printing system and test the printer.

Note

Make sure the system queue manager is running before creating queues.

3.1 If You Are Installing the Software for the First Time

If this is a new installation, you can use the startup template file to help you set up your queues. Copy the printer startup template file as follows:

```
$ COPY SYS$COMMON:[SYS$STARTUP]DCPS$STARTUP.TEMPLATE -
SYS$COMMON:[SYS$STARTUP]DCPS$STARTUP.COM
```

3.2 If You Are Upgrading From DECprint Printing Services Software (CPS)

If you are upgrading from CPS to DCPS, convert your CPS$STARTUP.COM file as follows:

1. Enter the following command:

   ```
   $ @SYS$STARTUP:CPS_TO_DCPS_STARTUP.COM
   ```

2. Answer the questions displayed on your screen. For example:

   ```
   Enter filename of CPS startup file to be converted;
   Default filename is SYS$SYSROOT:[SYS$STARTUP]CPS$STARTUP.COM
       [default]:

   disk$manager:[cps_conversion]cps$startup.com

   Enter filename of DCPS startup file to be created;
   Default filename is SYS$SYSROOT:[SYS$STARTUP]DCPS$STARTUP.COM
       [default]:
   ```

```
disk$manager:[cps_conversion]dcps$startup.com

Please read or run DIFFERENCES on the output file,
        DISK$MANAGER:[CPS_CONVERSION]DCPS$STARTUP.COM,
to be sure the new file meets your needs.
```

The procedure creates a startup file that DECprint Supervisor recognizes, but does not change your existing queue definitions. If you need to add new queues, see Section 3.3

DCPS has an automatic data type detection feature. Therefore, you no longer need to specify the data type as a queue default or in the PRINT command.

If you defined generic queues for default data types, edit DCPS$STARTUP.COM and remove them.

3.3 Setting Up Execution Queues

You must create an execution queue for each PostScript printer. Execution queues schedule jobs for processing and deliver the print jobs to a printer. An execution queue is associated with a particular printer.

When you create an execution queue, you supply information about the queue, including its name and default parameters. Example 3–1 shows creation of an execution queue for a PrintServer printer. Example 3–2 shows creation of an execution queue for a serial printer. These commands are placed in DCPS$STARTUP.COM.

Note

Configure your system so that required software is started before you start your execution queues. For example, for a networked printer, ensure that the corresponding TCP/IP, LAT, DECnet, AppleTalk, or PrintServer Supporting Host software is started first.

Also, if you invoke DCPS$EXECUTION_QUEUE.COM directly, and neglect to add the same command to DCPS$STARTUP.COM, some DCPS queues may not work after your OpenVMS system reboots.

Example 3–1 Creation of an Execution Queue Entry for a PrintServer Printer

(continued on next page)

Example 3–1 (Cont.) Creation of an Execution Queue Entry for a PrintServer Printer

```
$ @SYS$STARTUP:DCPS$EXECUTION_QUEUE -
LPS20$BULL09 -    ! P1 - Execution queue name
"DECNET/BULL09" - ! P2 - Device name (PrintServer DECnet node name)
DCPS_LIB -        ! P3 - Logical name for your library search list
"SIDES=2" -       ! P4 - Defines a default queue parameter
"" -              ! P5 - Value to override/add to default qualifiers
"" -              ! P6 - Communication speed
"" -              ! P7 - Set device qualifier
""                ! P8 - Verify on/off
```

Example 3–2 Creation of an Execution Queue Entry for a Serial Printer

```
$ @SYS$STARTUP:DCPS$EXECUTION_QUEUE -
2UP -             ! P1 - Execution queue name
"SERIAL/TTB4" -   ! P2 - Device name
DCPS_LIB -        ! P3 - Logical name for your library search list
"NUMBER_UP=2" -   ! P4 - Defines a default queue parameter
"/DEFAULT=(FLAG,FORM=MYFORM,NOFEED)" -
                  ! P5 - Value to override or add to default qualifiers
"" -              ! P6 - Communication speed
"/SPOOL=(2UP,DISK1$:)" -
                  ! P7 - Set device qualifier
""                ! P8 - Verify on/off
```

The following sections describe each item of information you need to supply to DCPS$EXECUTION_QUEUE.COM.

3.3.1 Supplying the Name of the Execution Queue (P1)

An execution queue name can have 1-31 characters, including uppercase and lowercase alphabetical characters, digits, the dollar sign ($), and the underscore character (_). The queue name must include at least one alphabetical character and cannot have intervening spaces.

3.3.2 Supplying the Printer Device Name (P2)

The printer device name specifies the interconnect and device used to access the printer, and the VMScluster member node on which it resides.

Specify the device name in the following format:

node::"interconnect/interconnect_specific_device_address"

where:

- *node* is the name of the VMScluster member on which the queue executes. If the OpenVMS system is not a member of a cluster, then *node::* can be omitted.
- *interconnect* specifies the interconnect type. You can specify one of the following:

For . . .	Specify . . .
Printers that connect through raw TCP/IP sockets	IP_RAWTCP
Printers that connect directly or through LAT	SERIAL
PrintServer printers using CPAP protocol and DECnet	DECNET
PrintServer printers using CPAP protocol and TCP/IP	IP_CPAP
Printers that connect through EtherTalk and LocalTalk protocols	APPLETALK

- *interconnect_specific_device_address* is the actual address of the printer.

The following sections have specific instructions:

For Printer using this interconnect . . .	See . . .
IP_RAWTCP	Section 3.3.2.1
Serial	Section 3.3.2.2
IP_CPAP	Section 3.3.2.3
DECnet	Section 3.3.2.4
AppleTalk	Section 3.3.2.5

3.3.2.1 If Your Printer Is On a TCP/IP Network and Uses Raw TCP/IP Sockets

Enter the device information in the following format:

`"IP_RAWTCP/`*`address:port`*`"`

where:

address is the IP address of your NIC, print server, or terminal server in either a named or numeric format.

port is the number of the raw TCP port for your network device. Check the documentation for your NIC, print server, or terminal server to determine what number to use. Table 3–1 shows the port numbers for some commonly-used devices.

Table 3–1 Raw TCP/IP Port Numbers

20nn	DECserver terminal servers, where “nn” is the physical port number
2501	DIGITAL LN17ps and DIGITAL Laser Printer LN17+ps Emulex NICs
3001	DIGITAL Laser Printer LN15 and LN15+ DIGITAL RapidPrint 500 print server
6869	DIGITAL Laser Printer LN20, LN40 and LNC02
9100	Compaq Laser Printer LN16, LN32 and LNM40 GENICOM LN and microLaser printers GENICOM RapidPrint MPS100 print server Hewlett-Packard LaserJet printers Lexmark Optra printers Tektronix Phaser printers Xerox DocuPrint N printers Hewlett-Packard JetDirect, XCD, and Lexmark NICs

For example, a raw TCP/IP printer could be specified by either of the following:

```
"IP_RAWTCP/ln17ps.my.org:2501"
"IP_RAWTCP/8.9.10.11:2501"
```

Note

If you specify the wrong port number for the printer, DCPS is unable to communicate with the printer. However, because the symptoms are no different than if the printer were busy, offline, etc., you do not receive any indication that the port number is illegal.

3.3.2.2 If Your Printer Is On a LAT Network or Directly Connected

Use the following format for serial printers:

If Your Serial Printer is On . . .	Use This Format . . .	Where . . .
A local serial line	“SERIAL/T*xyn*”	*x* is the printer type code, *y* is the controller name, and *n* is the host system unit number.
A LAT port	“SERIAL/LTA*n*”	*n* is the host system unit number.

Note

The SET TERMINAL and SET DEVICE commands translate the name of the printer for serial printers. To prevent the commands

from translating the printer name, prefix the printer name with an underscore (_).

3.3.2.3 If Your PrintServer Printer Is Part of a TCP/IP Network

Enter the device information in the following format:

```
"IP_CPAP/address"
```

where *address* is the IP address of your DIGITAL PrintServer printer in either a named or numeric format.

For example, a PrintServer TCP/IP node could be specified by either of the following:

```
"IP_CPAP/garmnd.dsg.dec.com"
"IP_CPAP/16.128.144.11"
```

3.3.2.4 If Your PrintServer Printer Is Part of a DECnet Network

Enter the device information in the following format:

```
"DECNET/nodename"
```

where *nodename* is the DECnet node name of your DIGITAL PrintServer printer.

For example, a PrintServer DECnet node could be specified by:

```
"DECNET/GARMND"
```

3.3.2.5 If Your Printer Is Part of an AppleTalk Network

You can include printers in your printing system that are connected to an AppleTalk network. To make an AppleTalk printer a network sharable device, the PATHWORKS AppleTalk for VMS software component must be running on the same node that is running the DCPS queue.

The configuration of this type of network is described in the PATHWORKS for VMS (Macintosh) *Introduction to the AppleTalk Network System* manual.

Enter the device information in the following format:

```
"APPLETALK/printername@zone@type"
```

where:

- *printername* is the AppleTalk node name assigned to the printer. This is the PostScript printer name. This value is required.

- *zone* is the zone that includes the printer. This value is optional. The default is the AppleTalk zone for the network segment of the OpenVMS system on which the print queue is running.
- *type* describes the printer's accessibility. This value is optional. Generally, the type is `LaserWriter`.

When only printername is required, the information provided for P2 would be just `"APPLETALK/`*`printername`*`"`.

For example, an AppleTalk printer could be specified by any of the following:

```
"APPLETALK/Paul's Printer"
"APPLETALK/Paul's Printer@MRO"
"APPLETALK/Paul's Printer@MRO@LaserWriter"
```

3.3.3 Supplying the Library Logical Name (P3)

The name of the standard device control library is DCPS$DEVCTL. This is the default library name if this parameter is blank. Refer to Chapter 7 for more information about creating device control libraries and defining the device control library logical name.

3.3.4 Assigning Default PRINT Command Parameters to the Queue (P4)

You can specify default PRINT command parameters to associate with the queue. Any PRINT parameter can be associated by default with a queue. Default PRINT parameters are used when the print job prints on the specified queue, unless the user specifies different parameter values in the PRINT command line. The parameter values specified in the PRINT command line override the default queue parameters.

Place quotes around default PRINT parameters, as shown in the following example:

```
$ @SYS$STARTUP:DCPS$EXECUTION_QUEUE -
2UP -             ! P1 - Execution queue name
"SERIAL/TTB4" -   ! P2 - Device name
DCPS_LIB -        ! P3 - Logical name for your library search list
"NUMBER_UP=2"     ! P4 - Defines a default queue parameter
```

How DECprint Supervisor Prioritizes PRINT Parameters

Parameters set by the /PARAMETERS qualifier of the PRINT command override any defaults set for the queue. DECprint Supervisor uses default values for parameters, from highest to lowest priority, as follows:

1. Parameters specified in the PRINT command
2. Queue defaults specified for the generic queue

3. Queue defaults specified for the execution queue
4. Defaults built into the DCPS software:

   DATA_TYPE=AUTOMATIC
   INPUT_TRAY=printer-specific[1]
   LAYUP_DEFINITION=no default layup definition
   MESSAGES=NOMESSAGES
   NUMBER_UP=0
   OUTPUT_TRAY=printer-specific[1]
   PAGE_LIMIT=no limit
   PAGE_ORIENTATION=PORTRAIT
   PAGE_SIZE=(same as SHEET_SIZE)
   SHEET_COUNT=1
   SHEET_SIZE=printer-specific[1]
   SIDES=printer-specific[1]
   TAB=NOTAB

Some parameter values are controlled by the printer hardware and can be set through means other than the DECprint Supervisor software. DIGITAL PrintServer printers are affected by the PrintServer Software. Other printers are controlled through the printer control panel or switches.

3.3.5 Supplying Default Queue Attributes (P5)

You can supply a value to override or add to the default queue attributes. Do not use the INITIALIZE/QUEUE command to set these qualifiers. Enter them into the queue definition instead.

By default, the printer startup command procedure creates print queues with the following INITIALIZE/QUEUE qualifier settings:

- **/SEPARATE=(BURST,TRAILER,NORESET)**

  The /SEPARATE qualifier is used to specify job separation pages. The default setting specifies:

  - Job burst pages.
  - Job trailer pages.
  - No reset module is sent between print jobs (NORESET). This setting is included for compatibility with sites upgrading from PrintServer client software.

- **/FORM_MOUNTED=DCPS$DEFAULT**

[1] These settings depend on the setting of the printer's PostScript interpreter.

This qualifier allows you to include a default form definition assumed to be mounted on the printer. The default form for ANSI jobs only is DCPS$DEFAULT. If you include a form definition with the /FORM_MOUNTED qualifier, specify the same form definition in the /DEFAULT qualifier as well.

- **/DEFAULT=(NOFEED)**

  The /DEFAULT qualifier specifies default PRINT qualifiers. The standard queue definition specifies a default setting of NOFEED on print jobs. You can modify this command line to include any PRINT qualifiers. For example, you can include your own form to be applied to print jobs when a form definition is required:

  ```
  /DEFAULT=(FORM=MYFORM,NOFEED)
  ```

  If you specify the /DEFAULT qualifier, be sure to include the FORM and NOFEED keywords. If they are not included, the values revert to the OpenVMS defaults, which are not compatible with the DECprint Supervisor software.

  Note

  If you include more than one qualifier in the queue definition, enclose the values in quotation marks.

3.3.6 Setting the Speed for Serial Printers (P6)

You can set the communications speed for serial printers attached directly to your OpenVMS system. If this parameter is blank, the default is 9600 baud. To change the speed, replace the null string ("") with a value, such as "19200". For printers that utilize network connections, this parameter is ignored.

3.3.7 Supplying SET DEVICE Qualifiers to the Queue (P7)

You can specify the SET DEVICE command qualifiers for this queue. For example, to enable error logging, include the following string:

```
"/ERROR_LOGGING"
```

Now, all error messages reported by the printer are recorded in the error log file, SYS$ERRORLOG:ERRLOG.SYS. You can read this file using the ANALYZE/ERROR command.

This parameter is valid for serial printers only.

3.3.8 Enabling SET VERIFY When Initializing the Queue (P8)

You can specify the setting of the SET VERIFY command for the DCPS$EXECUTION_QUEUE.COM command procedure. The default setting is NOVERIFY, to save log file space and console log space. If **P8** contains 1, then SET VERIFY is enabled, which is useful for diagnosing problems in the printer startup file. (Refer to the *OpenVMS DCL Dictionary* for more information about the SET [NO]VERIFY command.)

3.4 Customizing Execution Queue Behavior

You can alter the behavior of DCPS print symbionts and their corresponding execution queues in a number of ways, several of which are described in this section. Other options are listed in Appendix B, along with general guidelines for making the changes. Some customizations apply to all DCPS queues while others apply only to queues that you specify.

3.4.1 Running DCPS as a Multistreamed Process

A DCPS symbiont is capable of running as a multistreamed process. As a multistreamed symbiont process, one DCPS process can run more than one DCPS execution queue. A new DCPS process is not started every time a DCPS print queue is started, but only when all current processes are supporting a specified maximum number of queues (“streams”). The number of queues that a DCPS symbiont process will support is determined by the value of the logical DCPS$MAX_STREAMS when the process is started.

DCPS can be configured to support up to 32 execution queues per DCPS symbiont process. The logical DCPS$MAX_STREAMS is used to specify the number of queues per DCPS symbiont process. To define this logical, specify the following command in your DCPS$STARTUP.COM file (a template is provided in DCPS$STARTUP.TEMPLATE) and substitute the number of queues per process to use. If this logical is not defined, a DCPS process will support only one (1) execution queue.

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$MAX_STREAMS max-number
```

Execute your DCPS$STARTUP.COM file to enable this logical and start your queues with DCPS as a multistreamed process.

A DCPS process terminates only when all queues associated with the process are stopped.

3.4.1.1 Managing Print Queues When Running Multistreamed

The OpenVMS Queue Manager controls when a symbiont process is created and terminated. Generally a new DCPS symbiont process is created when there are no free streams in all existing DCPS symbiont processes. As previously stated, the number of streams (queues) that a DCPS process supports is determined by the value of the logical DCPS$MAX_STREAMS when a new process is started. A symbiont process terminates when all the queues supported by that process are stopped.

The set of print queues that a DCPS symbiont process supports is determined by the order in which queues are started, and by any subsequent stopping (`STOP/QUEUE/RESET` or `STOP/QUEUE/NEXT`) and starting (`START/QUEUE`) of queues. DCPS defines a logical which identifies the process ID for a queue (Section 5.8). You can use these logicals to determine the process that supports a queue and the set of queues that are supported by the same process.

Although not likely, a problem observed with one queue could be the result of a problem that exists with another queue, because both queues are supported by the same process. It may not be sufficient to examine the state of one job on one queue to identify a problem. You may need to look at the state of the *first* job on all the queues supported by that DCPS process.

A DCPS queue should not be stopped by stopping the DCPS process that supports that queue. Stopping a DCPS symbiont process with `STOP/ID` will stop all of the queues supported by that process.

3.4.1.2 Changing the DCPS Environment When Running Multistreamed

With a single-streamed DCPS symbiont process, changes to DCPS logicals and other aspects of the DCPS environment may not take effect until after you have issued a `STOP/RESET` and then a `START` command for the associated queue, depending on what you are trying to change.

To change the behavior for a single DCPS queue that is associated with a multistreamed process, you may need to stop **all** the DCPS queues associated with that symbiont process and then restart them before the change will take effect. This is because some aspects of the environment are determined only when the DCPS symbiont process starts (rather than when a DCPS queue starts), and the symbiont process does not stop until all of its associated queues are stopped.

3.4.2 Interrupting Busy Printers When a Job Starts

DCPS normally waits for a raw TCP/IP, LAT, or serial printer to be idle before sending a new job to it. This is especially important in a networked environment where a printer connected through a DECserver device or other network terminal server can be shared among DCPS queues, LATSYM queues, Windows and UNIX hosts, etc.

Prior to version V1.2, DCPS used an aggressive synchronization sequence to gain control of a printer's PostScript interpreter. This scheme worked well in an all-DCPS environment, but in a multi-host environment it sometimes caused print jobs from other systems to terminate prematurely.

If you rely on DCPS's earlier behavior to abort errant PostScript jobs on one queue by starting a job on another queue, you can define the following system-wide logical to restore the more aggressive behavior:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_INTERRUPT_WHEN_BUSY 1
```

3.4.3 Suppressing PostScript Synchronization When a Job Starts

DCPS begins a job on a raw TCP/IP, LAT, or serial printer by synchronizing with its PostScript interpreter to ensure that the interpreter is ready to accept commands. However, some PostScript printers are not always in a state where they can recognize the synchronization control characters. In particular, some printers that support additional printer languages like HP PCL do not correctly respond to this sequence under certain circumstances. For example, the DEClaser 3500, when in PS/PCL sensing mode, inadvertently switches to PCL mode when DCPS sends a Ctrl/T character to its serial port. The printer, then out of the PostScript mode, does not respond, and the print job gets stuck in the "starting" state.

You can define a logical to cause the DCPS symbiont to avoid using its usual synchronization sequence for printers that use a raw TCP/IP, LAT, or serial connection. The logical has no effect when using printers connected via other means. Refer to Chapter 10 for printer-specific recommendations.

To disable the synchronization sequence for a print queue, use the following command:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_NO_SYNC 1
```

The absence of the synchronization step is not generally a problem for most modern serially-connected printers because such printers use flow control to hold off data when the interpreter is not ready to accept data. However, the printer is more vulnerable to printing "garbage" or losing jobs if communication parameters, such as baud rate and stop bits, are not set correctly. Depending

on the configuration, it's also possible to loose print jobs if the printer data cable is disconnected or the printer is powered off.

3.4.4 Purging the Symbiont Process's Working Set

The DCPS symbiont purges its working set after it has been idle for a period of time in order to conserve system resources. The time delay is intended to help prevent the system from thrashing by keeping the program in physical memory while more work is apt to arrive.

By default, DCPS waits ten (10) minutes after becoming idle before purging its working set. You can increase this value, if desired, by defining a system-wide logical:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$PURGE_TIME "0 hh:mm:ss.00"
```

where *hh:mm:ss.00* is an OpenVMS delta-time value specifying the desired time delay. If the value is less than the default of ten seconds, the default is used.

3.4.5 Suppressing the OPCOM Message "User Name Not Found"

When DCPS is executing in a cluster environment where the UAF files are different between cluster members, an OPCOM message is displayed and the job prints normally:

```
%%%%%%%%%%  OPCOM   1-MAR-2001 18:43:55.87  %%%%%%%%%%
Message from user SYSTEM on LITERA
Queue SHARIE: %DCPS-W-USERNOTFOUND, user name FOO not found,
  no log files created
-RMS-E-RNF, record not found
```

Because the username cannot be found, the symbiont cannot perform the MESSAGES=KEEP or MESSAGES=PRINT parameter request.

To keep this OPCOM message from being displayed for every job:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_IGNORE_UNKNOWN_USER 1
```

3.4.6 Using Old ANSI Translator Page Size for A4 Landscape

All versions of the ANSI translator prior to DCPS V1.1A had a problem printing 66 lines of text in landscape mode on A4 paper. Certain printers have slightly smaller than average print areas when using A4 paper, which resulted in the 66th line being lost or clipped when using print parameters of PAGE_SIZE=A4,PAGE_ORIENTATION=LANDSCAPE.

The ANSI translator now correctly prints 66 lines of text in landscape mode on A4 paper. The fix involved changing the vertical spacing of the font used (SGR 15) and correcting the maximum printable area for A4 paper.

If you use preprinted forms that depend on the old translator's behavior, you can retain the old behavior by defining a DCPS logical:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_OLD_ANSI_PAGE_SIZES 1
```

3.5 Setting Up Generic Queues

Generic queues are not associated with a specific printer; rather, they point to the execution queues. Generic queues can be associated with more than one execution queue and can distribute print jobs among queues, or they can be used to associate specific DECprint Supervisor functions with a print job. Generic queues are optional.

Example 3–3 shows how to set up a generic queue for printing with a layup definition file. This generic queue feeds print jobs to either of two ScriptPrinter execution queues.

Example 3–3 Setting Up a Generic Queue

```
$ @SYS$STARTUP:DCPS$GENERIC_QUEUE -
DRAFT_DOCS -               ! P1 - Generic queue name
"LN03R_TTB4,LN03R_TTB7" - ! P2 - Execution queue names
"LAYUP=LPS$SINGLEHOLES"   ! P3 - Default queue parameters
"" -                      ! P4 - Default queue qualifiers
""                        ! P5 - Verify on/off
```

Table 3–2 Parameter Values for Generic Queues

Parameter	Value
P1 (required)	Name of the generic queue. In Example 3–3, **DRAFT_DOCS** is the generic queue to which users will send print jobs.
P2 (required)	Name of the execution queue(s) to which the generic queue can send jobs. You must supply at least one execution queue name for each generic queue definition. In Example 3–3, the generic queue will send print jobs to two execution queues: **LN03R_TTB4** and **LN03R_TTB7**.
P3 (optional)	Default PRINT parameters. In Example 3–3, **LAYUP=LPS$SINGLEHOLES** provides a default layup definition file for the generic queue.

(continued on next page)

Table 3–2 (Cont.) Parameter Values for Generic Queues

Parameter	Value
P4 (optional)	Explicit INITIALIZE/QUEUE qualifiers.
P5 (optional)	Setting of the SET VERIFY command. The default is SET NOVERIFY.

3.6 Activating Changes to the Queue Definitions

When you create or modify the DCPS$STARTUP.COM file, you must activate the changes for the DECprint Supervisor to use the new queue definitions. You can wait until you stop and restart the system, or you can execute the DCPS$STARTUP.COM file, as follows:

1. Stop the print queues that you modified. If any of the modified queues are running on a multistreamed symbiont, stop all other queues that are using that same symbiont (see Section 3.4.1.2). To stop the queues, enter the following command for each print queue:

   ```
   $ STOP/QUEUE/NEXT queuename
   ```

2. Edit the system startup file SYS$MANAGER:SYSTARTUP_VMS.COM to include a command that invokes DCPS$STARTUP.COM.

   Look for the following command in the system startup file:

   ```
   $ @SYS$STARTUP:DCPS$STARTUP
   ```

   If this command is not in the system startup file, add it to the file. Use the following guidelines:

   - If you are using a printer with TCP/IP, add the new line after TCP/IP is started.
   - If you are using a printer with LAT, add the new line after LAT is started.
   - If you are using a printer with AppleTalk, add the new line after AppleTalk is started.
   - If you are using a PrintServer printer with DECnet, add the new line after the command to invoke STARTNET.COM. PrintServer Software must be running on the PrintServer host system before you start the queues.

- If the system startup file includes a command to start LPS$STARTUP.COM, replace it with the command to start DCPS$STARTUP.COM.
- If you are upgrading from DECprint Printing Services (CPS), delete the command to start CPS$STARTUP.COM from the system startup file.

3. Execute the printer startup command file:

```
$ @SYS$STARTUP:DCPS$STARTUP.COM
```

If the queues are on a VMScluster system, you should execute the command above from all nodes in the cluster.

The print queues are started by the printer startup command file. See Section 3.7 for information on testing your new queue definitions.

3.7 Testing the Printing System

Note

Execution of the IVP (`@SYS$TEST:DCPS$IVP`) does not cause anything to print.

You can test the printing system by printing the IVP files from SYS$COMMON:[SYSTEST.DCPS]. The IVP files represent the different data types that DCPS supports. The IVP files are listed in Table 3–3.

Table 3–3 IVP Files with Different Data Types

File Name	File Type
DCPS$IVP_ANSI.DAT	ASCII files
DCPS$IVP_LIST.DAT	Simple ASCII
DCPS$IVP_PCL.DAT	PCL Level 4 files
DCPS$IVP_POST.DAT	PostScript files
DCPS$IVP_PROPRINTER.DAT	Proprinter files
DCPS$IVP_REGIS.DAT	ReGIS files
DCPS$IVP_TEK4014.DAT	Tektronix 4010/4014 files

DCPS can automatically detect the file's data type. You do not have to specify the data type on the command line. For example, you can enter the following PRINT command:

```
$ PRINT/QUEUE=queuename/NOTIFY DCPS$IVP_data-type.DAT
```

If the print queue is linked to a specific data type, or you are testing the LIST data type, specify the data type of the file.

For example, to print DCPS$IVP_POST.DAT, use the following PRINT command:

```
$ PRINT/QUEUE=queuename -
  /PARAMETERS=DATA_TYPE=POSTSCRIPT/NOTIFY -
  SYS$COMMON:[SYSTEST.DCPS]DCPS$IVP_POST.DAT
```

4

Providing Automatic Data Type Detection

DECprint Supervisor software can determine the data type of the file to be printed. This chapter explains how you can customize your printing system to print the types of files that users need to print.

4.1 How DCPS Automatically Detects Data Type

If a user does not specify the data type and the print queue has no default data type, DCPS examines each file in the print job. DCPS attempts to determine the data type of the file from instructions in the file, or from the file name extension.

If DECprint Supervisor software cannot determine the file data type by any of these methods, the file is printed as a text file. Text files are handled as ANSI files unless another default text file data type (PCL or Proprinter) has been defined by the system manager for the queue or for the system.

When files are treated as text files in this way, the DECprint Supervisor software can detect PostScript data after the text, so a file that starts with text followed by PostScript is printed properly.

The process of determining the file data type is repeated for each file in a print job, so a single print job can contain different types of files.

4.2 Specifying Automatic Data Type Detection

You can control how the DECprint Supervisor software determines the data type of files as they are printed. You can:

- Link file extensions with data types. You can edit the default file extension data file to add or modify the standard list of file extensions and the data types to which they are associated. See Section 4.2.1.
- Specify the default data type to use when DCPS cannot determine the file's data type in any other way. You can specify a system wide default and a queue-specific default text data type. See Section 4.2.2.

If necessary, you can create generic queues that have default data types, so that every file sent to the queue is assumed to be that data type. Only the user's PRINT parameters can override the queue default data type.

4.2.1 Linking File Extensions with Data Types

The DECprint Supervisor software uses a data file to link file extensions to data types. Use the following procedure to create a local data file of your system's file extensions and the associated data types.

1. If your system does not have a customized data file, use the sample file supplied with your software. Copy the file, and change the file's extension, as shown in the following command:

   ```
   $ COPY
   _From: SYS$LIBRARY:DCPS$FILE_EXTENSION_DATA_TYPE.DAT_DEFAULT
   _To: SYS$COMMON:[SYSLIB]DCPS$FILE_EXTENSION_DATA_TYPE.DAT
   ```

   If the .DAT file is not in variable or stream format, DCPS cannot read it when the queues are started. OPCOM will report the error, and the symbiont process may be terminated. You should save the .DAT file in the appropriate format, and then restart the printing system using the DCPS$STARTUP.COM file.

2. Edit the file. The file has the default file extension and data types listed. For example:

   ```
   POSTSCRIPT:
           EPS
           EPSF
           POST
           PS
           ;
   ```

   The example shows that files with extensions of .EPS, .EPSF, .POST, and .PS are linked to the PostScript data type.

   Add extensions that are specific to your site, or modify any that have a different local meaning.

   You can specify any valid DATA_TYPE value, except AUTOMATIC. Do not abbreviate the data type names. The valid data type names are:

   ANSI
   ASCII
   DDIF
   LIST
   PCL

POSTSCRIPT
PROPRINTER
REGIS
TEK4014

4.2.2 Specifying Default Data Types for the System and Queues

You can specify a system wide default text data type and queue-specific default text data types. If DCPS software cannot determine the data type, the file is processed as the default data type you specify.

The factory default data type is ANSI. If users regularly print PCL or Proprinter text files instead of ANSI files, you should change the default from ANSI to PCL or Proprinter.

Define one or both of the following logical names:

- DCPS$DEFAULT_TRANSLATOR specifies the system wide default text data type.

  To define a system wide default text data type, use the following command:

  ```
  $ DEFINE/SYSTEM/EXECUTIVE DCPS$DEFAULT_TRANSLATOR text_data_type
  ```

- DCPS$*queuename*_DEFAULT_TRANSLATOR specifies the queue-specific default data type.

  To define a queue-specific default text data type, use the following command:

  ```
  $ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_DEFAULT_TRANSLATOR text-data-type
  ```

Valid values for the *text-data-type* are:

- ANSI (the default)
- PCL
- PROPRINTER

Do not abbreviate the data type name.

If the system wide data type differs from the queue-specific data type, the queue-specific data type takes precedence.

The queue-specific logical name is useful when a queue is used by PATHWORKS clients. Text files printed from PCs may be PCL or Proprinter files. The following example specifies the PCL data type for the queue named PATHWORKS:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$PATHWORKS_DEFAULT_TRANSLATOR PCL
```

The DECprint Supervisor software attempts to determine the file data type for each file sent to the PATHWORKS queue. If a file data type cannot be determined, the file is processed as a PCL file. If the file contains PCL text followed by PostScript, it is printed properly.

4.2.3 How Users Control Data Type Detection

Users control the way print jobs are processed for automatic data type detection by specifying:

- The data type with the /PARAMETERS=DATA_TYPE qualifier in the PRINT command.

  This qualifier overrides the automatic data type detection process; only the presence of DDIF file tags can prevent the file from being processed using the translator associated with the specified data type. If the file contains DDIF tags and is explicitly specified as another data type, the file is not printed. The following error message is displayed, and the DECprint Supervisor software continues with the next file in the print job (if any):

  ```
  INVDDIFDATA, Invalid DDIF data, flushing to end of file
  ```

- Automatic data type detection with the following PRINT parameter:

  /PARAMETERS=DATA_TYPE=AUTOMATIC[=*text-data-type*]

  Users can specify the /PARAMETERS=DATA_TYPE=AUTOMATIC qualifier to specify automatic data type detection (for example, if the print queue has a default data type).

  If the user includes the default text data type (*text-data-type*) in the DATA_TYPE=AUTOMATIC parameter, the DECprint Supervisor software assumes the specified data type if the data type of a print file cannot be determined.

  The *text-data-type* value is optional; the default is ANSI. Users should include this value to specify another text data type, such as PCL or Proprinter.

  The DECprint Supervisor software can print a file that starts with the default text data type followed by PostScript data. If a user needs to print a file that begins with PCL text followed by PostScript data, the user can explicitly set the default text data type to be PCL using the following PRINT command:

  ```
  $ PRINT/QUEUE=PS20$A10 PIC.MSG/PARAMETERS=(DATA_TYPE=AUTOMATIC=PCL)
  ```

This feature is useful for printing files generated by electronic messaging systems. For example, you can print a PostScript file that was sent to you from someone using the messaging system, if the resulting file contains a text message header followed by PostScript data.

5

Manipulating Print Jobs and Print Queues

This chapter describes the commands for maintaining and controlling print jobs, print queues, and the queue manager.

Some of the commands described in this chapter require privileges.

5.1 Displaying Print Job Status

You can use the SHOW ENTRY command to display the status of a print job. You do not need privileges to use this command to display your own print jobs, but privileges are required to display another user's print jobs.

The SHOW ENTRY command lists all your print jobs. To display the status of another user's print job, you must supply the job number with the SHOW ENTRY command or specify the user using the /USER qualifier. You can display the job numbers for all print jobs in a designated queue using the SHOW QUEUE/ALL command, as follows:

```
$ SHOW QUEUE/ALL PS40$A12

Printer queue PS40$A12, busy, on LEVEL::PS40, mounted form DCPS$DEFAULT
(stock=DEFAULT)

  Entry  Jobname         Username     Blocks  Status
  -----  -------         --------     ------  ------
   304      MEMO         MSMITH            5  Printing
```

You can use the SHOW ENTRY/FULL command to display information about a specific print job. For example:

```
$ SHOW ENTRY 304/FULL

Entry  Jobname         Username     Blocks  Status
-----  -------         --------     ------  ------
  304  MEMO            MSMITH            5  Printing
       On busy printer queue PS40$A12
       Submitted 14-MAR-2001 10:41
       /FORM=DCPS$DEFAULT (stock=DEFAULT) /NOTIFY
       /PRIORITY=100
       File: _$1$DUA10:[MSMITH]MEMO.TXT;1 (printing)
```

Note

Print job status may be shown as "Printing" when the file has not yet actually started printing on the printer.

5.2 Deleting a Print Job

You can delete a print job using the DELETE/ENTRY command. You can delete you own print job without privileges. However, you must have privileges to delete another user's print jobs.

The DELETE/ENTRY command accepts the print job number as an argument. For example:

```
$ DELETE/ENTRY=569
```

This command deletes print job 569. The system sends messages indicating the successful print job deletion.

The print job is terminated in a method that depends on the status of the print job when you issue the DELETE/ENTRY command.

If you issue DELETE/ENTRY . . .	DCPS software . . .
when the print job is printing,	may take several seconds to stop the print job. The printer prints data in its buffers, plus any required job trailer pages and job log pages. During this time, a SHOW QUEUE command displays the job's status as Aborting.
before a connection is established with a network printer,	prints no pages.
after the connection is established,	prints the job trailer page with a message indicating the fact that you deleted the print job.

If you issue DELETE/ENTRY . . .	DCPS software . . .
before the job burst or job flag pages are printed,	may not print the job burst or job flag page. However, job trailer and job log pages are printed if the queue is set up to print them.

5.3 Releasing a Print Job in the Holding State

When a print job is in the Holding state, you must release it for it to print. The user can put a job in the Holding state using the PRINT/AFTER or PRINT/HOLD command. The user or system operator can put a print job in the Holding state using the SET ENTRY/HOLD command.

Use the SET ENTRY/RELEASE command to release the print job to be printed. You must specify the job number in the SET ENTRY command. This command does not require privileges if you are releasing a print job that you submitted. Privileges are required to release another user's print jobs.

For example:

```
$ SET ENTRY/RELEASE 569
```

In this example, print job 569 was in the Holding state and was released for printing.

5.4 Requeuing Print Jobs

You can change the print queue for one or more print jobs, as described in the following sections.

5.4.1 Requeuing Pending Print Jobs

You can requeue a print job that has not started printing using the SET ENTRY/REQUEUE command. Without privileges, you can requeue your jobs. With privileges, you can requeue any print job that has not started printing. You must supply the job entry number with the SET ENTRY command. The /REQUEUE qualifier requires the name of the new print queue. For example:

```
$ SET ENTRY/REQUEUE=POSTSCRIPT$DUPLEX 596
```

This command changes the print queue for job 596. The print job is sent to the POSTSCRIPT$DUPLEX queue.

5.4.2 Requeuing the Currently Printing Job to Another Queue

When a printer problem prevents completion of the printing job, you can requeue the print job to another printer. Use the STOP/QUEUE/REQUEUE command to send the print job to another print queue. You supply both the old queue name and the new queue name for this command. For example:

```
$ STOP/QUEUE/REQUEUE=POSTSCRIPT$DUPLEX POSTSCRIPT$SIMPLEX
```

In this example, the print job that is currently printing on the queue POSTSCRIPT$SIMPLEX is stopped and requeued to POSTSCRIPT$DUPLEX. The POSTSCRIPT$SIMPLEX queue is not stopped and continues with printing the next job in the queue.

5.4.3 Requeuing Current and Future Print Jobs in a Queue

The ASSIGN/MERGE command allows you to specify that all print jobs in a certain queue, and those submitted later for that queue, are to be sent to another queue. The ASSIGN/MERGE command requires privileges. You must supply the old queue name and the new queue name. Use the following procedure:

1. Use the STOP/QUEUE/NEXT command to stop the malfunctioning print queue after the current print job has finished.
2. Use the STOP/QUEUE/REQUEUE command to requeue the currently printing job to the new queue.
3. Use the ASSIGN/MERGE command to cause all pending and future print jobs to be requeued. For example:

```
$ STOP/QUEUE/NEXT PRINTER$NOTABLE
$ STOP/QUEUE/REQUEUE=PRINTER$ABLE PRINTER$NOTABLE
$ ASSIGN/MERGE PRINTER$ABLE PRINTER$NOTABLE
```

5.5 Modifying the Attributes of a Print Job

The SET ENTRY command allows a user to modify the attributes of a pending print job. You cannot modify a print job that has begun printing. If you have privileges, you can modify the attributes of print jobs submitted by other users. The SET ENTRY command requires that you specify the job number and allows you to specify one or more PRINT command qualifiers, which are listed in Appendix A. For example:

```
$ SET ENTRY 596/PARAMETERS=PAGE_ORIENTATION=LANDSCAPE
```

This example changes a print job from portrait orientation to landscape orientation. If the original PRINT job contained any PRINT parameters, you must specify them all again when you modify any print parameters with the SET ENTRY/PARAMETERS command. If you do not respecify the PRINT parameters, the print job will be printed using the default parameter values for those not included in the SET ENTRY command.

5.6 Displaying a Queue

You can display a print queue, including its status, its attributes and the print jobs in the queue, using the SHOW QUEUE command. This command does not require privileges, unless you wish to view queue security information or view print jobs belonging to other users.

To display a specific queue, supply the queue name. To display all of the queues, omit the queue name from the SHOW QUEUE command. Use the commands in Table 5–1 to display information about queues.

Table 5–1 Commands to Display Queues

To list:	Enter:
The name and description of every print and batch queue	SHOW QUEUE
The names of all the print queues	SHOW QUEUE/DEVICE=PRINTER
All the jobs in all the queues	SHOW QUEUE/ALL
All the jobs in the specified queue	SHOW QUEUE/ALL *queue-name*
The attributes of all the queues	SHOW QUEUE/FULL
The attributes of a certain queue	SHOW QUEUE/FULL *queue-name*

5.7 Pausing a Queue

Use the STOP/QUEUE command to pause a queue. You must have privileges and supply the queue name to the STOP/QUEUE command.

You can pause the queue after the current print job has completed by using the STOP/QUEUE/NEXT command. This allows the current job to complete before pausing the queue. For example:

```
$ STOP/QUEUE/NEXT PS$A4
```

This command pauses the queue PS$A4 after the current job has completed printing.

If it is necessary to pause the queue without waiting for the current job to complete, use the STOP/QUEUE/RESET command. For example:

```
$ STOP/QUEUE/RESET PS$A4
```

This command pauses the queue PS$A4 and printing stops immediately.

Note

When communications problems arise with a serial or raw TCP/IP interconnect, the symbiont will keep listening for up to 4 minutes before disconnecting from the printer. Therefore, under some conditions, the device is not released immediately after a STOP/QUEUE/RESET command is issued.

See Appendix A for more STOP/QUEUE qualifiers.

5.8 Starting a Queue

Use the START/QUEUE command to restart a print queue that has been paused with the STOP/QUEUE command. If you make changes to a print queue in DCPS$STARTUP.COM, restart the queue by executing the DCPS$STARTUP.COM file, as described in Section 3.6.

For example, to restart print queue PS40$A15, use the following command:

```
$ START/QUEUE PS40$A15
```

If you interrupt a printing job when you stop the queue, the print job restarts when you restart the queue.

The logical name, DCPS$*queuename*_PID, is defined by the symbiont when it starts executing. This allows the system manager to determine which symbiont is assigned to a given queue, and is especially useful when using multi-streamed symbionts. See Section 3.4.1.

Note

When a DCPS queue is started, the symbiont does not immediately attempt to make a connection to the printer, to minimize the possibility that the queue will not start. This is particularly important while starting queues at system boot time, to avoid introducing delays or errors into the boot process. It is not until DCPS starts processing a

job from a queue that DCPS determines the state of the printer and its associated interconnect.

5.9 Modifying the Attributes of a Queue

You can temporarily modify the attributes of a print queue with the SET QUEUE command. When the printing system is restarted, the queue attributes you set with the SET QUEUE command are lost. To permanently modify print queue attributes, edit the DCPS$STARTUP.COM file.

The qualifiers to the SET QUEUE command are listed in Appendix A. Note that some print queue attributes cannot be set using the SET QUEUE command.

The following command limits the print jobs for the PS$DRAFT queue to those of 1000 blocks or less.

```
$ SET QUEUE PS$DRAFT/BLOCK_LIMIT=1000
```

The SET QUEUE command requires privileges; you must supply the queue name and the appropriate qualifiers.

5.10 Preventing Users from Printing to a Queue

Use the SET QUEUE/CLOSE command to close a queue and prevent users from submitting print jobs to the queue. This command requires privileges and you must supply the queue name. For example:

```
$ SET QUEUE/CLOSE PS$A4
```

After you enter this command, the PS$A4 queue is closed and users cannot submit print jobs to the queue. The print jobs that are currently in the queue are completed. You can open the print queue using the following command:

```
$ SET QUEUE/OPEN PS$A4
```

5.11 Deleting a Queue

You can delete a print queue using the DELETE/QUEUE command. This command requires privileges. Follow these steps to delete a DECprint Supervisor queue:

1. Make sure that there are no generic queues running that are associated with the queue that you are deleting, by displaying the queue using the SHOW QUEUE/FULL command. If there are generic queues associated with the queue, delete the generic queues first.

2. Pause the queue using the STOP/QUEUE/NEXT command. Wait for the printing to stop on the printer before you delete the queue.
3. Requeue all the print jobs in the queue and future print jobs for the queue using the ASSIGN/MERGE command (see Section 5.4.3).
4. Delete the queue with the DELETE/QUEUE command. Enter the queue name as an argument to this command. For example, the following command deletes the queue PS$A4 and any print jobs that were pending in that queue.

   ```
   $ DELETE/QUEUE PS$A4
   ```

Remember to modify the DCPS$STARTUP.COM file to delete the queue permanently. Otherwise, when the printing system is restarted, the print queue you deleted will come back.

5.12 Responding to a Stalled Queue

Printers are reported as Stalled when the DECprint Supervisor does not receive information from the printer within a specified amount of time. When the stalled timeout value is exceeded, the following message is displayed:

```
PRINTERSTALLED, Printer printer-name is stalled
```

You can alter the stalled printer timeout value be defining a logical:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_STALL_TIME "0 hh:mm:ss.00"
```

where *hh:mm:ss.00* is an OpenVMS delta-time value specifying the desired time delay.

The default stalled timeout value is four minutes. Compaq recommends that you do not change this timeout value.

When you receive a message that the printer is stalled, you must determine if action is required. If the stalled message came from a networked printer (for example, a PrintServer printer), the stalled message probably indicates that a long time has passed between network communications and therefore you can safely ignore the stalled messages.

But if the stalled message follows other printer-related messages, they may indicate another reason for the long delay. The printer might be out of paper, or it might have a paper jam. Therefore, when a print queue is stalled, you should check your OPCOM messages to see if a printer condition was previously reported. Refer to Chapter 11 for more information.

DCPS may also temporarily define a system-wide logical giving some indication of why the queue is stalled. To examine this logical, execute the following command on the system where the execution queue is running. If the queue is on a VMScluster, be sure to use the appropriate cluster member.

```
$ SHOW LOGICAL DCPS$queuename_STALLED
```

5.13 Stopping and Starting the Queue Manager

To stop and start all the queuing activity on the system, stop and start the queue manager. System shutdown and startup procedures perform these operations automatically. The commands to stop and start the queue manager require privileges.

You can stop the queue manager using the following command:

```
$ STOP/QUEUE/MANAGER/CLUSTER
```

When you are ready to start the queue manager, enter the following command:

```
$ START/QUEUE/MANAGER
```

6

Specifying Separation, Log, and Error Pages

6.1 What Are Separation Pages?

Separation pages are sheets that show where a user's print job or each file in a print job begins and ends. Separation pages include:

- **Burst pages** - printed at the beginning of a print job or file.
- **Flag pages** - printed at the beginning of a print job or file.
- **Trailer pages** - printed at the end of a print job or file.

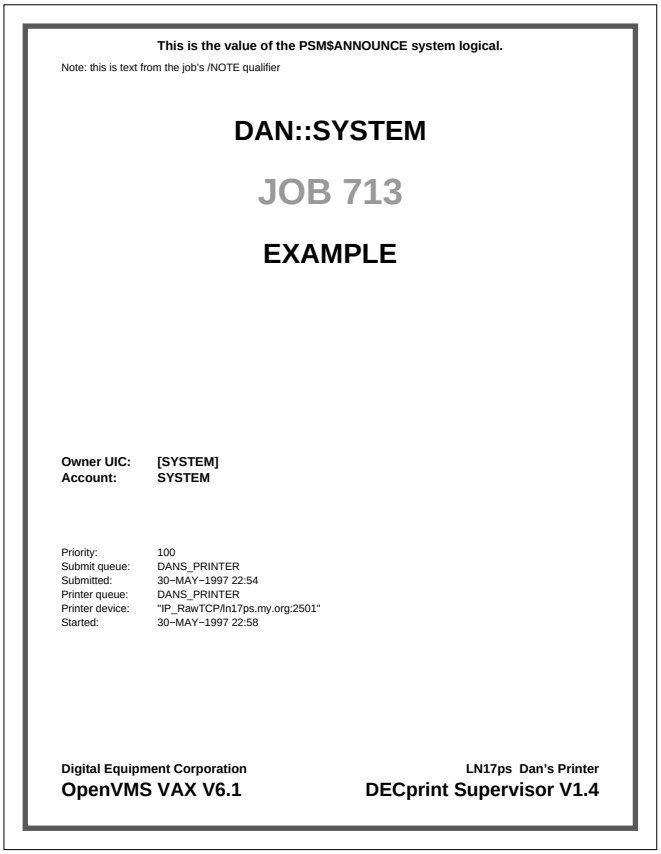
A job flag page looks like a job burst page without the border around the page. A job trailer page looks like a job flag page with the message "END OF JOB" printed at the top and with additional information listed for the job (for example, when it finished, which PRINT qualifiers and parameters were used, and how many pages were printed). File separation pages are differentiated from each other in an analagous fashion, and from job separation pages by the presence of file-specific information (for example, the file specification, file size, and modification time).

You can enable separation pages for print jobs and each file in a print job. The following sections show you how.

6.2 Enabling Job Separation Pages

Job separation pages keep print **jobs** separate. Figure 6–1 shows one type of job separation page; a job burst page.

Figure 6–1 A Job Burst Page



You enable and disable job separation pages by editing the DCPS$STARTUP.COM file; the user cannot override these settings.

Enter the /SEPARATE qualifier to parameter 5 in the execution queue entry in DCPS$STARTUP.COM, as shown here:

```
@sys$startup:dcps$execution_queue -
    DCPS_TTB4 -                     ! P1 - Execution queue name
    "SERIAL/TTB4" -                 ! P2 - Device name
    DCPS_LIB -                      ! P3 - Logical name for /LIBRARY
    "" -                            ! P4 - Default queue parameters
    "/SEPARATE=(BURST,NOFLAG,TRAILER)"
                                    ! P5 - Default queue qualifiers
```

Notes:

- Job burst pages do not imply job flag pages for DCPS, as is true for some other OpenVMS print symbionts.
- You can use the SET QUEUE command to temporarily specify job separation pages. For example:

  $ **SET QUEUE/SEPARATE=(BURST,NOFLAG,TRAILER)** ***queuename***

- Job separation pages are not affected by parameters set with the PRINT/PARAMETERS command or by the PostScript file being printed. The pages use the default PostScript context of the printer, not the context of the user's job.
- Even if you disable separation pages, DCPS prints a job trailer page if an error occurs in the print job. The job trailer page contains messages about the errors in a print job.

6.2.1 Error Messages on the Trailer Page

If the print job contains errors, the trailer page includes messages that can help the user determine what went wrong with the print job. Following are examples of these messages:

```
28-MAR-2001 11:03  %DCPS-I-TRAYSUBST, Output will be delivered to the
only tray on printer-name

28-MAR-2001 11:03  %DCPS-W-INVACC, invalidaccess: Attempt to access
restricted object or capability - offending command is get
```

These types of messages are also displayed on the user's terminal if /NOTIFY was specified in the PRINT command for the print job.

The following types of messages are not printed on the job trailer page:

- Start and end messages
- Hardware printer error messages, such as "out of paper"
- Messages related to communications
- Messages that the software uses to manage resources in the printer

6.2.2 Suppressing Job Trailer Pages

DCPS normally prints a job trailer page if errors occur during the job, even if /SEPARATE=TRAILER is not specified for the queue, as mentioned in sections Section 6.2 and Section 6.2.1. This behavior may be undesireable when printing on expensive media, especially if the reported errors are unimportant.

To prevent DCPS from printing job trailers, even when errors occur for the job, define the following system-wide logical:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_SUPPRESS_JOBTRAILER 1
```

Note

Running DCPS this way makes it much more difficult to diagnose real problems when they arise. If you are getting nuisance error messages, Compaq recommends that you resolve the underlying problem rather than suppressing the messages.

6.2.3 Specifying a Special Input Tray for Job Burst and Flag Pages

When users print jobs on expensive or special media, it may be desirable to print job burst and flag pages from a special input tray. This technique is also useful for specifying a different color paper for separating print jobs.

You may specify a special input tray for job flag pages and job burst pages. Define a logical name using the following command:

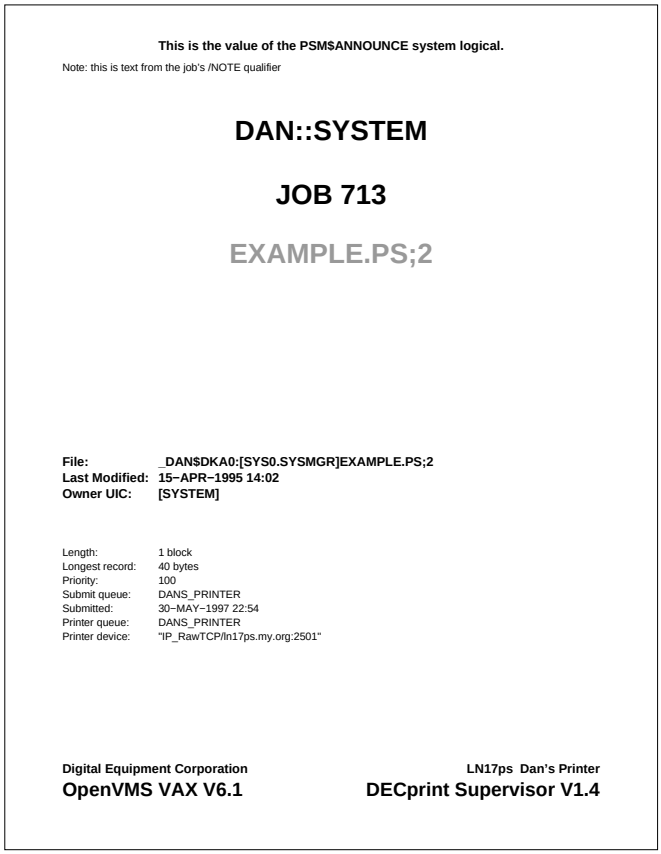
```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_SEPARATOR_TRAY n
```

In this command, *queuename* is the name of the execution queue and *n* is the PostScript input tray number. The tray numbers are specific to your printer model and may be listed in your printer owner's manual.

6.3 Enabling File Separation Pages

File separation pages separate the **files** in the print job. Figure 6–2 shows an example of a file flag page.

Figure 6–2 A File Flag Page



To enable default file separation pages, do the following:

- For an **execution queue,** specify /DEFAULT=(*file-separation-page*) in parameter **p5**.
- For a **generic queue,** specify the /DEFAULT=(*file-separation-page*) in parameter **p4**.

Users can override the default file flag, burst, and trailer attributes for a queue by specifying the /[NO]FLAG, /[NO]BURST, and /[NO]TRAILER qualifiers in the PRINT command.

In the following example, each file in the job will be preceded by a file flag page and followed by a file trailer page:

```
$ PRINT/FLAG=ALL/TRAILER=ALL FILE1.PS,FILE2.PS,FILE3.PS
```

Note

If the PAGE_LIMIT parameter is used in the PRINT command, or if the print job is terminated, the file flag page and file trailer page may not be printed.

6.4 Adding a System Message to Separator Pages

You can add a system message to the top of job and file burst, flag, and trailer pages for all jobs printed on your system. The following example shows you how:

```
$ DEFINE/SYSTEM/EXECUTIVE PSM$ANNOUNCE "Computer Services Group"
```

The example shows that the logical name PSM$ANNOUNCE is now “Computer Services Group”.

Note

The PSM$ANNOUNCE logical is used by other print symbionts (for example, LATSYM) as well as by the DCPS symbiont. Your definition of PSM$ANNOUNCE will also affect these other symbionts.

6.5 Requesting Job Log Pages

A job log page is an optional sheet with information about the print job and any messages that occurred during the print job. Use the MESSAGES=PRINT parameter in the PRINT command to print a job log page. When printed, the job log page precedes the job trailer page. If you are not printing job trailer pages, the job log page is the last page of a job.

6.6 The File Error Page

If the software cannot access the print file when the print job starts printing, a file error page is printed and the software continues with the next file in the print job (if any).

The file error page contains the following information:

- File log page banner
- Client node name and user's name
- Job number
- File identification (file name, extension, and version only)
- File specification (full file specification)
- The messages area

7

Creating Setup Modules and Device Control Libraries

7.1 What Is a Setup Module?

A setup module is a file containing instructions that modify the appearance of a print job or redefine the instructions in the print job.

You can include a setup module in a print job with the PRINT command's /SETUP qualifier. The following example uses a setup module that specifies 600 dots-per-inch (DPI) resolution:

```
$ PRINT/QUEUE=LPS32$2SIDES/SETUP=RES_600X600 IMAGE.PS
```

You can also implicitly include setup modules in a print job through the use of a form (see Chapter 8).

7.2 Locating Setup Modules

DECprint Supervisor ships with various setup modules, which are located in the following device control library:

SYS$LIBRARY:DCPS$DEVCTL.TLB

To list the setup modules, use the following command:

```
$ LIBRARY/LIST SYS$LIBRARY:DCPS$DEVCTL.TLB
```

The list of setup modules displays, similar to the following:

```
DCW1000_DISPLAY
DCW1000_ENHANCED
DCW1000_HIGHRES
LPS$$APPLE360_INITPSDEVICE
LPS$$APPLE360_SETINPUTTRAY
RES_1200X1200
RES_1200X600
```

Note

Do not modify any of the setup modules or the device control library.

Some setup modules are created only for certain printers. Those setup modules have the printer name as part of their file name. For instance, the setup module DL3500_RET_DARK is intended for the DEClaser 3500 printer.

Note

Do not change the contents of the standard supplied device control library.

7.2.1 Locating Custom Setup Modules

Custom setup modules go in special device control libraries, which are required to be .TLB (text library) files located in SYS$LIBRARY. The following command lists all of the text libraries in SYS$LIBRARY. To determine what subset of these are special device control libraries used with DCPS, correlate the .TLB file names with the libraries and library search lists associated with the /LIBRARY qualifier for your system's DCPS print queues.

```
$ DIRECTORY SYS$LIBRARY:*.TLB
```

7.2.2 Displaying the Contents of a Setup Module

To see the instructions that a setup module contains, do the following:

1. Extract the setup module from the device control library. The following example extracts the setup module DI_ON from DCPS$DEVCTL.TLB and renames it MYSETUP.TXT in the user's directory:

   ```
   $ LIBRARY/EXTRACT=(DI_ON)/OUT=MYSETUP SYS$LIBRARY:DCPS$DEVCTL.TLB
   ```

2. Type or edit the setup module to display its contents:

   ```
   $ TYPE MYSETUP.TXT
   ```

The setup module DI_ON enables DECimage, and contains the following instructions:

```
%!
% ~~~~~~~~~~ DI_on ~~~~~~~~~~
statusdict begin false setDECimage end
systemdict /languagelevel known {languagelevel} {1} ifelse
2 ge {currentpagedevice /Install get exec} if
statusdict begin true setDECimage end
% ~~~~~~~~~~~~~~~~~~~~~~~~~~~
```

Note

Some setup modules contain escape sequences or graphics, which cannot be displayed when you type the file. For such modules, you may wish to use the DUMP/RECORD command on the extracted file.

7.3 Creating Custom Setup Modules

You can create setup modules that affect print jobs with different data types. Some setup modules manipulate ANSI print jobs, while others affect PostScript jobs. You can create setup modules for any data type you support.

Notes:

- If your PCL or Proprinter setup module needs carriage-control characters after each line, manually supply them when you create the setup module file. (PCL and Proprinter setup modules do not end line with carriage-control characters because the setup modules may contain binary data, like fonts and raster graphics.)
- ANSI setup modules cause a page eject in the printer before the data file, if the setup module causes anything to be printed.

7.4 Creating Device Control Libraries

To make the setup module accessible to users, you must create a device control library and put the module in the library. Create a different library for setup modules of each data type. Do not include setup modules of different data types in the same library. You can create a library for ANSI, PCL, Proprinter, or PostScript files.

Note

Do not put your custom setup modules in the standard DCPS$DEVCTL library. Custom setup modules in DCPS$DEVCTL will be deleted if you upgrade DECprint Supervisor software.

To create a library for setup modules, use the following command format:

```
$ LIBRARY/CREATE/TEXT SYS$COMMON:[SYSLIB]library-name.TLB
```

You supply the *library-name*, the name you give to the library.

The following command creates a new PostScript device control library, PS1, for your customized PostScript setup modules:

```
$ LIBRARY/CREATE/TEXT SYS$COMMON:[SYSLIB]PS1.TLB
```

For more information, refer to the *OpenVMS Command Definition, Librarian and Message Utilities Manual*.

7.4.1 Putting Setup Modules in Libraries

To insert a setup module into a device control library, use the following command format:

```
$ LIBRARY/INSERT SYS$LIBRARY:library-name.TLB module-name
```

In the command line, you supply the following information:

library-name	The name of the library
module-name	The name of the setup module

The following command puts the PostScript setup module, CONFIDENTIAL.PS, into your PostScript device control library, PS1.TLB, and names the setup module CONFIDENTIAL:

```
$ LIBRARY/INSERT SYS$LIBRARY:PS1.TLB CONFIDENTIAL.PS
```

The following command puts the ANSI setup module, A4_PAGE.TXT, into your ANSI device control library, ANSI1.TLB, and names the setup module A4_PAGE:

```
$ LIBRARY/INSERT SYS$LIBRARY:ANSI1.TLB A4_PAGE.TXT
```

7.4.2 Specifying a Library Search List

If you have several device control libraries, you need to set up a search list of the libraries in SYS$STARTUP:DCPS$STARTUP.COM. The search list specifies which device control libraries to search, and the priority of the libraries.

Example 7–1 shows a search list of device control libraries.

Example 7–1 Search List for Device Control Libraries

```
$ DEFINE/SYSTEM/EXECUTIVE/NOLOG DCPS_LIB -
         DCPS$DEVCTL,-
         "PS1/DATA_TYPE=POSTSCRIPT",-
         "ANSI1/DATA_TYPE=ANSI",-
         PS2
```

In Example 7–1, the software does the following:

1. Looks in the standard device control library **DCPS$DEVCTL** for required setup modules and for any setup modules that have been specified with /SETUP or /FORM.
2. Looks in the PostScript library **PS1** for any specified setup modules not found in the standard device control library. (PostScript setup modules can be used with any type of file, so the PostScript device control library is always included in the search for a setup module.)
3. If the print job is ANSI, looks in the library called **ANSI1**.
4. If the print job is a data type other than ANSI, skips the ANSI1 library and looks for it in the PostScript library **PS2**.

To define your library logical name and search list, perform the following steps:

1. Edit DCPS$STARTUP.COM and add the following command line:

Command Line	Example

`$ DEFINE/SYSTEM/EXECUTIVE/NOLOG -`
`  *logical-name* -`
`  *search-list*`
	`$ DEFINE/SYSTEM/EXECUTIVE/NOLOG DCPS_LIB -`
	`  DCPS$DEVCTL,-`
	`  "PS1/DATA_TYPE=POSTSCRIPT",-`
	`  "ANSI1/DATA_TYPE=ANSI",-`
	`  PS2`

In the command line, you supply the following information:

logical-name: Use a logical name that expands to a list of library names. Make sure the logical name also appears in the execution queue definition (parameter **p3**). **search-list:** Add the list of libraries to be searched. Use the following guidelines as you add libraries:

- Place the standard device control library, DCPS$DEVCTL, first in the list for most efficient printing.

  If you do not include DCPS$DEVCTL in the library search list, the symbiont stops and returns the following error message:

  `REQMODNOTFOUND, Required device control module` *`module-name`* `not found`

- Make sure all the library names are in SYS$LIBRARY.
- Make sure all the library names have the file extenstion .TLB.
- For each library that includes the /DATA_TYPE qualifier, enclose the library name and the qualifier in quotation marks. If you do not use the /DATA_TYPE qualifier, you do not need to enclose the library name in quotation marks. The default data type for a library is PostScript.
- If an ANSI module and a PostScript module perform the same function and have the same name, determine which one you want as the default for ANSI jobs.

  If you want ANSI jobs to default to PostScript, place the PostScript device control library before the ANSI library. If you want ANSI jobs to default to ANSI, place the ANSI library in front of the PostScript library.

2. Stop and restart the execution queue to include your new library. (If you add a setup module to an existing library, you do not have to reinitialize the queue.)

7.4.3 Device Control Libraries Must Exist for Queue to Start

All device control libraries specified for a queue must exist for the queue to start. For example, if a queue is defined with the following logical, the libraries SYS$LIBRARY:DCPS$DEVCTL.TLB, SYS$LIBRARY:ANSI.TLB and SYS$LIBRARY:PS.TLB must all exist as text libraries:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS_LIB -
    DCPS$DEVCTL, -
    "ANSI/DATA_TYPE=ANSI", -
    "PS/DATA_TYPE=POSTSCRIPT"
```

7.4.4 Preserving Custom Setup Modules During Upgrades

When you install DECprint Supervisor software, it creates a new version of the standard device control library (DCPS$DEVCTL.TLB). If you purged old files during the software installation, early copies of the device control library are deleted. (Refer to the *DECprint Supervisor for OpenVMS Software Installation Guide* for more information.)

When you add custom setup modules, create a new library and refer to it in the library search list. This preserves your custom setup modules when you upgrade your software.

Upgrading from DECprint Printing Services or PrintServer Client Software

DECprint Printing Services software and PrintServer Client software have their own device control libraries (CPS$DEVCTL.TLB and LPS$DEVCTL.TLB). When you upgrade to DECprint Supervisor, the CPS$ and LPS$ device control libraries are no longer used. If you have custom setup modules in either of those libaries, insert the modules into a new library and specify the library in the device control library search list.

7.5 Including Setup Modules in Print Job

You can specify setup modules using the /SETUP qualifier in the PRINT command.

To include an ANSI setup module in a print job using the /SETUP qualifier, use the following command format:

$ **PRINT/QUEUE=*queue-name*/SETUP=*your-module-name print-file*.TXT**

If you enter the command wrong, the error is not detected until the file prints. To enable the software to detect the error immediately, you can include the setup module in a form. See Chapter 8 for instructions.

If users access a setup module frequently, you can associate the setup module with a queue, so that all print jobs submitted to that queue are printed with the setup module automatically. See Chapter 8 for instructions.

7.6 Persistently Loading PostScript Resources

Note

This feature applies only to desktop printers; PrintServer printers are loaded with persistent resources using the PrintServer software.

Downloading PostScript code with every print job can adversely affect printing performance. To resolve this problem, you can load a module that permanently resides in the printer.

The module LPS$PERSISTENT_RESOURCES loads persistently to desktop printers. To create a persistent PostScript module, follow these steps:

1. Create a new device control library for site-specific PostScript setup modules, using the following command:

   ```
   $ LIBRARY/CREATE/TEXT SYS$COMMON:[SYSLIB]library-name.TLB
   ```

2. Edit the SYS$STARTUP:DCPS$STARTUP.COM file to include the new device control library in the search list. Use the following command in the DCPS startup file:

   ```
   $ DEFINE/SYSTEM/EXECUTIVE/NOLOG DCPS_LIB DCPS$DEVCTL, "library-name/DATA=POST"
   ```

3. In the execution queue definition for each PostScript printer to which you want to load the setup module, ensure that the logical name DCPS_LIB is entered in parameter 3 as the device control search list logical name.
4. Save the DCPS$STARTUP.COM file.
5. Stop the queues for the printers affected by the change, using the STOP/QUEUE/RESET command for each queue.
6. Execute the new DCPS$STARTUP.COM file.
7. Test each print queue by sending two print jobs to the printer. The setup module is loaded with the first print job sent to the printer. The setting should be effective for the second print job, as well.

CAUTION

Problems can occur from the misuse of the persistent setup feature. Keep the following in mind when using this feature:

- Only PostScript setup modules can be persistently loaded. Other data types cannot be persistently loaded.
- A setup module can exceed the printer's virtual memory. Different models of printers have different capacities. For example, a setup module can overwhelm a printer with too many fonts.
- A shared network printer can be used from several nodes in the network. Make sure the same setup module is loaded from all the nodes that access the printer to ensure consistent print results. If you required different setup modules load the setup module with each print job, using either the /SETUP or /FORM qualifier.
- Improper PostScript coding in a persistently loaded setup module can cause unexpected results that are difficult to analyze. Also, because the code remains in the printer until the printer is turned off, users from different systems may have print jobs fail with unexpected results, but would not be able to determine the cause of the problem.

7.7 Changing the Default Character Set for PCL and Proprinter Print Jobs

The default character set for PCL files is Roman-8. The default character set for Proprinter files is code page 437, character set 1. To change the default character set, use the following procedure:

1. Create one device control library for PCL setup modules, one for Proprinter modules, and another library for PostScript modules. Use the following commands:

```
$ LIBRARY/CREATE/TEXT SYS$COMMON:[SYSLIB]PCL_LIB
$ LIBRARY/CREATE/TEXT SYS$COMMON:[SYSLIB]PRO_LIB
$ LIBRARY/CREATE/TEXT SYS$COMMON:[SYSLIB]PS_LIB
```

2. Edit DCPS$STARTUP.COM to include these libraries, as follows:

```
DEFINE/SYSTEM/EXECUTIVE/NOLOG DCPS_LIB DCPS$DEVCTL,
                               "PCL_LIB/DATA=PCL",
                               "PRO_LIB/DATA=PRO",
                                PS_LIB)
```

   The PostScript device control library (PS_LIB) must be last in the search list.

3. Create the following setup modules:

   - The DEF_CHAR_SET.PCL file selects the PC-8 Danish/Norwegian character set:

     ```
     <ESC>!'1P<ESC>(11U<ESC>!'0P
     ```

     Replace <ESC> with the escape character (decimal 27).

   - The DEF_CHAR_SET.PRO file selects code page 850:

     ```
     <ESC>'<ETX><NUL><CR>R<ETX>
     ```

     - Replace <ESC> with the escape character (decimal 27).
     - Replace <ETX> with the etx character (decimal 3).
     - Replace <NUL> with the null character (decimal 0).
     - Replace <CR> with the carriage return character (decimal 13).

   - The DEF_CHAR_SET.PS PostScript file is used for printing files that are neither PCL nor Proprinter.

4. Put these modules in the appropriate device control libraries, using the LIBRARY command as shown in the following example:

   ```
   $ LIBRARY/INSERT/TEXT
   SYS$COMMON:[SYSLIB]PCL_LIB DEF_CHAR_SET.PCL

   $ LIBRARY/INSERT/TEXT
   SYS$COMMON:[SYSLIB]PRO_LIB DEF_CHAR_SET.PRO

   $ LIBRARY/INSERT/TEXT
   SYS$COMMON:[SYSLIB]PS_LIB DEF_CHAR_SET.PS
   ```

5. Create a form definition that includes DEF_CHAR_SET as the setup module. You can associate this form with your printer execution queue as follows:

   ```
   $ DEFINE/FORM DEF_CHAR_SET form_number -
     /SETUP=DEF_CHAR_SET/STOCK=DEFAULT
   ```

To make this change to the queue permanent, specify this form in the execution queue definition in the DCPS$STARTUP.COM file.

7.8 Specifying Printer Resolution with Setup Module

These setup modules allow you to manipulate the resolution of PostScript Level 2 printers.

Table 7–1 Printer Resolution Setup Modules

Setup Module	Description
RES_300X300	300 dpi horizontal and vertical
RES_600X300	600 dpi horizontal and 300 dpi vertical
RES_600X600	600 dpi horizontal and vertical - default
RES_1200X600	1200 dpi horizontal and 600 dpi vertical
RES_1200X1200	1200 dpi horizontal and vertical

Note

Not all resolutions are supported by all printers. To have the printer notify you if it cannot print at a specified resolution, add the /NOTIFY switch to the PRINT command. If the printer cannot print at the requested resolution, it prints at a lower resolution.

7.9 Modifying DECimage Parameters with Setup Modules

There following setup modules invoke DECimage or modify the DECimage parameters. They are grouped into the following categories:

Enabling and Disabling DECimage

These setup modules leave all current parameters intact, and turn DECimage on or off. It is not necessary to use these modules if you use other DECimage setup modules. The DECimage setup modules automatically invoke DECimage for the current print job.

Table 7–2 Enabling and Disabling DECimage

Setup Module	Description
DI_ON	Turns DECimage ON
DI_OFF	Turns DECimage OFF

Combined Parameters

These setup modules adjust two DECimage parameters simultaneously.

Table 7–3 DECimage Setup Modules—Combined Parameters

Setup Module	Description
DI_HICONTRAST	Punch0 = 0.2, Punch1 = 0.8
DI_LOCONTRAST	Punch0 = -.1, Punch1 = 1.1
DI_BRIGHTER	Punch0 = -.2, Punch1 = 0.8
DI_DARKER	Punch0 = 0.2, Punch1 = 1.2
DI_NORMAL	Punch0 = 0, Punch1 = 1

Individual Parameters

When you specify one of these setup modules, all other parameters remain at the default value or the value most recently modified by another setup module. The setup modules have no order dependency, so they may appear in any order on the print command line.

Table 7–4 DECimage Setup Modules—Individual Parameters

Setup Module	Description
DI_PUNCH0_0	Punch0 = 0
DI_PUNCH0_0P1	Punch0 = 0.1
DI_PUNCH0_0P2	Punch0 = 0.2
DI_PUNCH0_M0P1	Punch0 = -.1
DI_PUNCH0_M0P2	Punch0 = -.2
DI_PUNCH1_1	Punch1 = 1
DI_PUNCH1_0P8	Punch1 = 0.8
DI_PUNCH1_0P9	Punch1 = 0.9
DI_PUNCH1_1P1	Punch1 = 1.1
DI_PUNCH1_1P2	Punch1 = 1.2
DI_SHARP_0P5	Sharpness = 0.5
DI_SHARP_1	Sharpness = 1.0
DI_SHARP_1P5	Sharpness = 1.5
DI_SHARP_2	Sharpness = 2.0
DI_SHARP_2P5	Sharpness = 2.5

DECimage Setup Module Example

The following example adds sharpening and shifts the gray levels:

```
$ PRINT/NOTIFY/QUEUE=queue/SETUP=(DI_SHARP_2,DI_DARKER) file
```

7.10 Providing Access to Font Cartridge Emulation

The DECprint Supervisor software can emulate physical font cartridges. Use the FONTS_USED parameter with the PRINT command to specify one or more soft font modules from the device control library SYS$LIBRARY:CPS$ANSI_FONTS.TLB.

This feature, which is available for ANSI files only, supports documents that require font cartridges to print on DIGITAL ANSI printers. Just as with these printers, the document must contain escape sequences that select the desired fonts.

Note

DECprint Supervisor software does not include any soft font modules. You may obtain soft font kits from Compaq separately.

You can associate one or more default soft font modules with a print queue, so that users do not have to specify this parameter on the PRINT command line. For example, to establish CGTRIUM24_ISO1 as the default soft font module for the queue, include the following line in DCPS$STARTUP.COM:

```
FONTS_USED=CGTRIUM24_ISO1
```

(Add the line to **p4** in the execution queue definition or as **p3** in the generic queue definition.)

You can combine soft font modules for user convenience, at the expense of disk space and loading time. For example, if users need to load all three DEC Multinational CG Times soft font modules together, create a new module using the following sequence of commands:

```
$ LIBRARY SYS$LIBRARY:CPS$ANSI_FONTS.TLB/EXTRACT=CGTIMES8-10-12_MCS
$ LIBRARY SYS$LIBRARY:CPS$ANSI_FONTS.TLB/EXTRACT=CGTIMES14-18_MCS
$ LIBRARY SYS$LIBRARY:CPS$ANSI_FONTS.TLB/EXTRACT=CGTIMES24_MCS
$ COPY CGTIMES8-10-12_MCS.TXT,CGTIMES14-18_MCS.TXT,-
CGTIMES24_MCS.TXT ALLCGTIMES_MCS.TXT
$ LIBRARY/INSERT SYS$LIBRARY:CPS$ANSI_FONTS.TLB ALLCGTIMES_MCS.TXT
```

Users can specify the new module with the print parameter FONTS_USED=ALLCGTIMES_MCS.

7.11 Device Control Library Cache Feature

DCPS includes a device control library caching feature that optimizes the retrieval of certain commonly-used PostScript device control modules.

The caching feature causes modules with names beginning with LPS$$ to be read only the first time they are requested. Those modules reside in the symbiont's cache. Jobs that follow can quickly access those modules until you reset the queue or restart the system. This minimizes access to the primary device control library, saves CPU time, reduces disk activity.

The device control library caching feature is disabled by default. To enable the device control library caching feature for a specific queue, enter the following command before you start a print queue:

```
$ DEFINE/SYSTEM/EXECUTIVE DCPS$queuename_DEVCTL_CACHE 1
```

Caching device control library modules can decrease the total CPU time consumed by the symbiont by as much as 17 percent. I/O activity on the part of the symbiont is also reduced by as much as 50 percent.

You can define the system logical DCPS$DEVCTL_CACHE (with no queue name specified) to specify that device control library caching is enabled for all DCPS print execution queues on that system.

7.12 Printing on Unrecognized Printers

The DCPS software automatically obtains a printer's product name before printing jobs. It uses the product name to select and download device control modules that are specific to the particular printer.

If you use the DCPS software with a printer whose product name it does not recognize, the product name defaults to "UNRECOGNIZED" and the supervisor downloads device control modules associated with that name. Although this configuration is unsupported, the modules associated with the unrecognized printer may be sufficient to permit simple printing with that device.

A system manager can also modify the corresponding device control modules as needed without affecting the characteristics of any of the supported printers. By following the comments contained within the LPS$$UNRECOGNIZED modules, along with some knowledge of PostScript and the specifics of the printer, and examination of device control modules for similarly programmed printers (if any), the system manager may be able to get tray and sheet size selection working for the printer.

Note

Your use of an unrecognized printer with DCPS, and any use or modification of the LPS$$UNRECOGNIZED device control modules, is without support or assistance from Compaq Computer Corporation. Further, Compaq makes no commitment to maintain the same contents of or interface to these modules for different versions of DCPS.

Device control modules are located in the following device control library:

```
SYS$COMMON:[SYSLIB]DCPS$DEVCTL.TLB
```

The device control modules associated with an unrecognized printer are:

```
LPS$$UNRECOGNIZED_INITPSDEVICE
LPS$$UNRECOGNIZED_SETCONTEXT
LPS$$UNRECOGNIZED_SETINPUTTRAY
LPS$$UNRECOGNIZED_SETOUTPUTTRAY
```

If you modify these modules for a certain printer, you should always place the modified modules in a site-specific device control library (see Section 7.4).

8

Creating and Maintaining Form Definitions

You can create form definitions, which users can include in their PRINT command to modify the appearance of a file. A form definition can specify several attributes for a print job, including the type of paper stock on which it is to be printed; the width, length, and margins associated with the paper; whether long text lines are to be truncated or wrapped onto another line; and setup modules to be implicitly sent to the printer.

When users specify an unknown form name in their PRINT command, DECprint Supervisor informs them immediately. In contrast, if they specify an unknown setup module in their PRINT command, DECprint Supervisor does not inform them of the problem until it starts printing the job and needs to access the setup module.

The commands for creating, maintaining, and deleting forms require that you have operator privileges.

8.1 Associating Setup Modules with Forms

To associate a setup module with a form, use the DEFINE/FORM command with the /SETUP qualifier.

Example 8–1 defines a form called CONFIDENTIAL that uses a setup module called PRIVATE.

Example 8–1 Sample Form Definition, CONFIDENTIAL

```
$  DEFINE/FORM CONFIDENTIAL 101-
      /DESCRIPTION="prints the word CONFIDENTIAL on each page"-
      /STOCK=DEFAULT-
      /SETUP=PRIVATE
```

When you define a form, you supply the following qualifiers and information:

- **Form Name:** You select the name for the form you are defining. The name can consist of up to 31 characters and must contain at least one alphabetic character.

- **Form Number:** You specify a number for the form you are defining.
- **/DESCRIPTION:** You can optionally add a description to the form to help users understand what the different forms do.
- **/STOCK:** You supply the name of the media that needs to be in the printer when this form is invoked. The media you specify must match the media in the printer. If they do not match, the job is held in the queue until users load the specified media or modify the form definition. Use the DEFAULT parameter to use whatever media is in the printer.
- **/SETUP:** You must supply the name of the setup module(s) you want associated with the form.

Note

The existence of the setup module(s) is not checked until the form is used.

8.2 Associating a Form with a Print Queue

If users invoke a setup module frequently, you can associate the setup module with a form, then associate the form with a queue. This method ensures that print jobs submitted to the queue automatically use the setup module. Use the following procedure to associate a form with a queue:

1. Associate the setup module with the form, as described in Section 8.1.
2. Associate the form with the execution queue, by editing parameter 5 (**p5**) in DCPS$STARTUP.COM as follows:
   - With the /FORM_MOUNTED qualifier, specify the name of the form you want tied to the queue.
   - Specify the /DEFAULT=FORM=*form-name* qualifier to ensure that every job prints with the form, even if the user does specify a form.

   The following example associates the form called CONFIDENTIAL with an execution queue called XLR8:

```
$ @SYS$STARTUP:EXECUTION_QUEUE.COM -
  XLR8-                     !P1 - Execution queue name
  "DECNET/XLR8" -           !P2 - Device name
  DCPS_LIB -                !P3 - Logical name for /LIBRARY
  "" -                      !P4 - Not used
  "/FORM_MOUNTED=CONFIDENTIAL/DEFAULT=(FORM=CONFIDENTIAL,NOFEED)"
                            !P5 - Queue default qualifiers
```

8.3 Creating Form Definitions for ANSI Files

When you define forms for ANSI files, you can use various qualifiers that affect the page layout. For example, the following command defines the form CENTER to have a top margin of 6 and a left margin of 10:

```
$ DEFINE/FORM /MARGIN=(TOP=6,LEFT=10) CENTER 3
```

You can use the qualifiers in Table 8–1 with form defintions for ANSI files only:

Table 8–1 DEFINE/FORM Qualifiers for ANSI Files

This Qualifier . . .	Does the Following . . .
/LENGTH=*n*	Sets the length of each page, in lines.
/MARGIN=*keyword=n*	Sets the margins. You supply one or more of the following keywords: – TOP=*n* – BOTTOM=*m* – RIGHT=*y* – LEFT=*z* To supply more than one margin keyword, enclose the list in parentheses, as in: `/MARGIN=(TOP=n,BOTTOM=m)`
/PAGE_SETUP=*module*	Applies a page setup module to each page in the job.
/[NO]TRUNCATE	Truncates long lines that do not fit in the page width.
/WIDTH=*n*	Sets the width of the page in columns or characters.
/[NO]WRAP	Wraps lines wider than the page to the next line.

Notes:

- These form definitions are useful only with ANSI files, because other types of files have internal controls for these attributes.
- You can prevent the software from wrapping or truncating long lines by including both /NOWRAP and /NOTRUNCATE in the form definition.

8.4 Displaying Forms and Their Attributes

You can display the forms that already exist on your system with the following command:

```
$ SHOW QUEUE/FORM
```

The form definitions display as follows:

```
Form name                          Number   Description
---------                          ------   -----------
A4_12 (stock=PLAIN_PAPER)            1129   A4 12-Pitch with margins
A4_LPT_GRAY (stock=PLAIN_PAPER)      1118   A4 DP line printer with gray bars
A4_LPT_PLAIN (stock=PLAIN_PAPER)
                                     1119   A4 Plain DP line printer format
BOOT_CHART (stock=DEFAULT)             37   BOOT_CHART
BSS$LANDSCAPE (stock=DEFAULT)        3301   BSS Specific Landscape
BSS$PORTRAIT (stock=DEFAULT)         3302   BSS Specific Portrait
```

You can display the attributes of a form using the SHOW QUEUE/FORM/FULL command. For example, this command displays the attributes of DCPS$DEFAULT:

```
$ SHOW QUEUE/FORM/FULL DCPS$DEFAULT
```

```
Form name                          Number   Description
---------                          ------   -----------
DCPS$DEFAULT (stock=DEFAULT)         1115   DCPS default
    /LENGTH=66 /STOCK=DEFAULT /TRUNCATE /WIDTH=80
```

8.5 Deleting a Form

Use the DELETE/FORM command to delete a form definition from the system's form table. The format of this command is as follows:

```
$ DELETE/FORM form-name
```

In the command line, you supply *form-name*, which is the name assigned to the form you are using.

Before you use the DELETE/FORM command, execute the SHOW QUEUE/FULL/ALL command. References to a form can exist as an attribute of an active print queue or as a qualifier to a print request. If you try to delete a form that has outstanding references, you are notified of the condition, and the form is not deleted. (Refer to Appendix A.)

8.6 Using the Default ANSI Form Definition

If users omit a form definition in their PRINT command, but supply one of the following qualifiers, DECprint Supervisor links the default form definition DCPS$DEFAULT with the ANSI file.

/HEADER
/SPACE
/PARAMETERS=[NO]TAB

9

Charging Users for Printer Resources

This chapter describes the accounting information that is supplied to the OpenVMS accounting files by the DECprint Supervisor software.

The OpenVMS Accounting Utility reads information about the use of system resources from the file SYS$MANAGER:ACCOUNTING.DAT. The DECprint Supervisor software records information in this file about printer usage. For information about the OpenVMS Accounting Utility, see the *OpenVMS System Manager's Reference Manual*.

9.1 Accounting Information Supplied by the DECprint Supervisor Software

The print symbiont supplies the following information in the accounting file for each print job:

- Pages printed -

  This is the actual number of sheets printed. When you are using the NUMBER_UP parameter to print multiple pages on a sheet, this field records the number of sheets of paper printed, not the number of logical pages printed. The number of sheets printed includes the separation (flag, trailer, and burst) pages. When the print job is deleted by the user or system operator, this information reflects the number of pages printed before the job was terminated.

- Gets from source -

  This is the number of RMS "gets" from all files in the print job (records read).

- QIO puts

  This is the number of QIO "writes" to the printer per job.

When a print job has been completed successfully, the print symbiont sends a request to the job controller to insert certain accounting data fields into the accounting log file. For successful jobs and jobs terminated by the DELETE/ENTRY command, the accounting file also includes the following message:

```
%SYSTEM-S-NORMAL, normal successful completion
```

If the print job terminates abnormally, the information the print symbiont supplies in the accounting log may be incomplete. To filter out such jobs, count only the jobs that receive the successful completion status message. Any of the following may cause the job to terminate abnormally:

- STOP/QUEUE/RESET command
- Symbiont crash
- Printer crash
- Network connection lost

9.2 Accounting Information Supplied by the Job Controller

The job controller supplies the following information in the accounting file for print jobs:

- Username

  User name of the user who submitted the print job.

- Account

  Account name of the user who submitted the print job.

- UIC (user identification code)

  UIC of the user who submitted the print job.

- Process ID

  Process ID of the user who submitted the print job.

- Start Time

  The time the print job reached the top of the device queue (not necessarily the time that the print job actually began to print).

- Finish Time

  The time the job finished printing.

- Elapsed Time

The wall-clock time it took for the job to print (finish time minus start time).

- Priority

  Queue priority of the print job.

- Final Status Code

  Exit status of the print job. The status code for success is 00040001.

- Queue Entry

  Queue entry number. This is the print job number. In this example, 222 is the job number:

```
$ PRINT/QUEUE=LN03R$SCRIPT4/NOTIFY TEST.MEM
  Job TEST (queue LN03R$SCRIPT4, entry 222) started on queue SCRIPT4
```

- Queue Name

  Name of the print device queue.

- Queue Job

  Print job name, as printed on the job flag page.

- Final Status Text = F$MESSAGE

  The text for the Final Status code. The text for completion of a normal job is:

```
%JBC-S-NORMAL,  Normal successful completion
```

9.2.1 Accounting Fields Left Blank by the Job Controller

The job controller fills the following fields with blanks in the accounting file for print jobs:

- Owner ID
- Terminal Name
- Remote Node Name
- Remote ID

9.2.2 Accounting Fields Filled with Zeros by the Job Controller

The job controller fills the following fields with zeros in the accounting file for print jobs:

- Privilege <31–00>
- Privilege <63–32>

9.3 Compatibility with Mechanical Page Counters

The PrintServer printers have mechanical page counters.

The mechanical page counter is different from the counter accessible through the PostScript **pagecount** operator.

- The mechanical page counter counts all the sheets printed since the print engine was built.
- The PostScript page counter counts the number of sheets printed by the controller.

Under normal use, the totals of both counters increase at a similar rate, but there can be a significant difference between them. Print engine test pages, initiated with the test button on the printer, are recorded on the mechanical counter but not on the PostScript counter. Also, replacing components can affect the counters. For example, replacing the nonvolatile memory of the controller resets the PostScript counter, but it does not affect the mechanical counter.

Because the counters record different events, they should be used for different purposes:

- Use the PostScript counter to determine the number of sheets printed within a PostScript program.
- Use the mechanical counter to track print engine use.

10

Printer-Specific Information

This chapter provides management information about using DCPS with specific printers. Printer-specific information that might be of interest to general users is in the *DECprint Supervisor for OpenVMS User's Guide* rather than in this manual. The *DECprint Supervisor for OpenVMS Release Notes* may also contain additional printer-specific information.

Check the documentation for your printer, network interface card, print server, or terminal server to determine the correct TCP port number to use. The TCP port number may also be listed in Table 3–1.

10.1 Apple LaserWriter Plus Printer

10.1.1 LPS$PERSISTENT_RESOURCES Not Supported

The DCPS feature to load the module LPS$PERSISTENT_RESOURCES outside the PostScript server loop for desktop printers is not supported for the LaserWriter Plus.

10.2 Compaq Laser Printer LN16 and GENICOM microLaser 170

10.2.1 Printer Configuration Setting

DCPS requires the printer's PERSONALITY be set to POSTSCRIPT. If the PERSONALITY is set to AUTO or PCL, DCPS jobs will remain in a Starting state and never print. This setting is in the printer console's CONFIG menu.

Setting the PERSONALITY to POSTSCRIPT will still allow PCL jobs coming from Windows PCs to print correctly.

10.2.2 LAT and AppleTalk Configuration

To create a LAT device for use by a DCPS queue, you can use either of the following sets of values for LATCP qualifiers:

- /NODE=*nodename* /PORT=PORT_1
- /SERVICE=*service*

where *nodename* is the printer's NIC nodename and *service* is the name of a valid service on the printer. These values can be obtained from the printer NIC's status page or by logging in to the NIC via Telnet or LAT. For example, this command shows the printer NIC's nodename to be PRQ_00001F:

```
Local_4> show server
   NET16 Version V1.0/1(990126)          Uptime:                23:17:07
   Hardware Addr: 00-50-27-00-00-1f      Name/Nodenum:      PRQ_00001F/ 0
   Ident String: NET16
```

To create a DCPS queue using AppleTalk, you must use a service name. You can use one of the default services, modify a default service or create your own. The following is an example of a service that can be used by both LAT and AppleTalk. In this example, DCPS_LN16 is the AppleTalk name.

```
Local_4> list service dcps_ln16

Service:  DCPS_LN16         Ident:  DCPS Compaq Laser Printer LN16
  Rating: N/A               Ports:  1
  Characteristics:          Queueing  Binary  Rtel  Connections  AppleTalk
                            Lat
  SOJ: <none>     EOJ: <none>
  Enabled Groups: 0
```

Create AppleTalk services with caution, as creating the same service name on more than one printer will result in multiple printers using the same AppleTalk name on your network.

Refer to the printer's *Ethernet Network Interface Card (NIC) Reference Manual* for more information about setting characteristics of printer services.

10.3 Compaq Laser Printer LN32 and LNM40; GENICOM LN21, LN28 and LNM40; GENICOM microLaser 210, 280, 320 and 401

10.3.1 Printer and Network Firmware Versions

Firmware versions are listed on the printed Summary Sheet and on the printer's internal Web page. Printer firmware is listed as *Product Version* and network firmware is listed as *Network Version*.

10.3.2 Printer Configuration Settings

10.3.2.1 Language-Sensing Mode

DCPS can print to these printers when the printer is in PostScript mode or automatic language-sensing mode. Make sure the INTERPRETER and FORMAT settings are set as described in Table 10–1. These values are set in the INTERFACE menu on the printer's console.

Table 10–1 Valid LN21, LN28, LN32, LNM40, mL210, mL280, mL320 and mL401 Language Sensing Configurations

	Printer Settings	
Printer Mode	**Interpreter**	**Format**
PostScript/PCL sensing	Auto Switch	Raw
PostScript	PostScript	Normal

10.3.2.2 Printer Setting May Cause Stalled Queues

The factory default value for the printer's Delayed Output Close setting may cause DCPS queues to stall. The default value is OFF and is intended to improve performance by controlling how quickly the printer ends one job and starts another. However, if you also print from environments other than DCPS, this value may cause DCPS queues to stall. Therefore, if you also print from multiple environments, set the value to ON. If you print only from DCPS, you may leave the value of Delayed Output Close at OFF.

The setting for Delayed Output Close is found on the printer's console as DELAY OUT CLOSE in the NETWORK section of the INTERFACE menu. *

10.3.3 LAT and AppleTalk Configuration

Please see Section 10.2.2 for information about configuring LAT and AppleTalk queues.

* This setting does not appear on LN32 and LNM40 printers with firmware earlier than version 3.03.

10.3.4 Queue Aborts When Using TCPware

When using TCPware with these printers, it is possible to receive numerous userdata messages on the screen and have the queue fail with an OPCOM message similar to the following:

```
%%%%%%%%%%  OPCOM  21-APR-1999 15:09:53.22  %%%%%%%%%%
Message from user SYSTEM on ZIPPY
Queue LN32_RAW: %DCPS-F-EXQUOTA, process quota exceeded
```

This problem occurs when running TCPware V5.3-3 and network firmware V1.0/4 (990323). To avoid this problem, the system manager should perform one of the following steps:

- Issue the following TCPware commands:

  ```
  $ NETCU STOP /TCP
  $ NETCU START /TCP /NOPATH_MTU_DISCOVERY
  ```

- Upgrade TCPware to a version later than V5.3-3
- Apply TCPware patch kit DRIVERS_V533P020
- Upgrade the printer's network firmware

10.4 DIGITAL Colorwriter LSR 2000 Printer

10.4.1 NIC Does Not Work with Raw TCP/IP

DCPS cannot communicate with the Colorwriter LSR 2000 NIC via a raw TCP/IP connection because the NIC does not support raw TCP/IP communication.

AppleTalk is the only network protocol that DCPS can use to communicate with the Colorwriter LSR 2000 printer.

10.5 DIGITAL DECcolorwriter 1000 Printer

10.5.1 Printer-Specific Setup Files

You can use the files listed in the table below to alter the persistent state of the printer, affecting all subsequent jobs that the printer receives from your system and from other systems in the network until the printer is turned off and back on. The files are located in the SYS$COMMON:[SYSHLP.EXAMPLES.DCPS] directory.

Setup File	Description
DCW1000_CONFIG.PS	Sets the printer timeouts
DCW1000_DEVPARAM.PS	Changes configuration of the serial port
DCW1000_STARTPG.PS	Enables the start page
DCW1000_NOSTRTPG.PS	Disables the start page
DCW1000_PRNTCNFG.PS	Enables a software-selected information page
DCW1000_PSCRIPT.PS	Changes the port to PostScript and default on all ports

Notes:

- When you send the DCW1000_DEVPARAM.PS file to the printer, the communications settings change and the queue hangs. You must STOP/RESET the queue and change the corresponding settings on the DECserver or other LAT device to which the printer is connected. Also, be sure that the printer is running in PostScript mode.
- By default, the DIP switches on the back of the printer are in the down position, indicating that the serial interface can be adjusted and that no color correction is set. The factory default is 9600 baud, 8 bits, and no parity. See the DECcolorwriter 1000 documentation for further information on how setup files and DIP switches interact.
- To check the current configuration of the printer, toggle DIP switch 4 from down to up, then to down (with the other three DIP switches in the down position). The printer prints a configuration page. Make sure that the printer is running in PostScript mode.

10.6 DIGITAL DEClaser 3500 Printer

10.6.1 Job Remains in Starting State

When using DCPS with the DEClaser 3500 printer with the optional serial port, the job may remain in a starting state. If this is the case, you must choose one of the following options:

1. Lock the printer to PostScript mode. (On the front panel: Serial, Printer Type = STD PostScript). Do not use the DCPS$*queuename*_NO_SYNC logical. In this mode, native PCL is not available because the printer does not respond to PJL sequences. You should use the workaround described in Section 10.7.1 to force use of the PCL 4 translator.

2. Set the serial port language sensing mode to Automatic. (On the front panel: Serial, Printer Type = PS/PCL Sensing), and define the DCPS$*queuename*_NO_SYNC logical. In this mode, the printer responds to PJL sequences and switches to native PCL 5 or PostScript as indicated by the datastream.

10.6.2 Interaction Between Communication Protocol and Native PCL Support

The optional network card supports switching to native PCL; however, the protocol must be set to autosensing.

10.6.3 NIC Does Not Work with Raw TCP/IP

DCPS cannot communicate with the printer via a raw TCP/IP connection because the NIC does not support bidirectional TCP/IP communication.

As an alternative, you can connect the printer to a print server (for example, the Rapidprint 500) or a terminal server, or use a LAT connection instead.

10.7 DIGITAL DEClaser 5100 Printer

10.7.1 Native PCL Is Unavailable with EtherTalk Protocol on NIC

Because of a problem with the Network Interface Card (NIC), DCPS cannot switch the printer into native PCL when using the EtherTalk protocol. Users will see the error:

```
%DCPS-W-UNDEF, undefined: Name not known - offending command is <1B>
%DCPS-E-FLUSHING, Rest of Job (to EOJ) will be ignored
```

A partial workaround is possible by specifying a default print job parameter of `PAGE_LIMIT=999999` for the queue when you create it in DCPS$STARTUP.COM. This parameter forces any PCL files to be printed through the PCL translator. Remember, though, that the PCL translator is PCL 4 rather than PCL 5.

10.7.2 NIC Does Not Work with Raw TCP/IP

DCPS cannot communicate with the printer via a raw TCP/IP connection because the NIC does not support bidirectional TCP/IP communication.

As an alternative, you can connect the printer to a print server (for example, the Rapidprint 500) or a terminal server, or use a LAT connection instead.

10.7.3 Downloading and Deleting Fonts

You may download or delete fonts from the DEClaser 5100 printer's optional hard drive using the FONT_DOWNLOADER.COM procedure described in Appendix C.

10.7.4 Error Page Feature

The DEClaser 5100 printer has a feature that ejects the current sheet and then prints a PostScript Error information sheet when a PostScript interpreter error occurs. While this feature provides a powerful means for analyzing PostScript problems, it is not recommended for everyday use with the DCPS software for the following reasons:

- PostScript error pages are printed when a user enters `DELETE/ENTRY` to abort a print job.
- PostScript error pages are printed after a not ready condition is cleared (paper supplied, jam corrected, etc.) if a job was submitted on the serial port while the printer was not ready to print.

You should disable the feature called "Print Errors" through the DEClaser 5100 front panel before starting print queues with DCPS. Enable the feature only when you are interested in analyzing PostScript problems.

If a job fails to print because of a "Limitcheck" error, also see if "page protection required" is part of the error message. Presence of this error means the job failed because of a banding failure.

10.8 DIGITAL Laser Printer LN15+

The DIGITAL Laser Printer LN15+ is an upgrade to the DIGITAL Laser Printer LN15. References in the DCPS documentation to the DIGITAL Laser Printer LN15 also apply to the DIGITAL Laser Printer LN15+.

10.8.1 Printer Configuration Settings

DCPS requires certain LN15 printer characteristics to be set. If these values, described in Table 10–2, are not set, DCPS jobs will remain in a Starting state and never print.

Table 10–2 LN15 Configuration Settings

Setting	Value	Where Set	Documentation
PERSONALITY	PS	Printer console CONFIG menu	LN15 User Manual
NPAP MODE	OFF	Printer console PARALLEL menu	LN15 User Manual
PORT 1 BITRONICS	ENABLED	Ethernet card management	RapidPrint 600 Print Server Installation Guide

10.9 DIGITAL Laser Printer LN17+ps

The DIGITAL Laser Printer LN17+ps is an upgrade to the DIGITAL LN17ps printer. References in the DCPS documentation to the DIGITAL LN17ps printer also apply to the DIGITAL Laser Printer LN17+ps.

10.9.1 Job Remains in Starting State

If you use a raw TCP/IP or LAT-connected LN17ps printer with DCPS, the associated DCPS print job may remain in a Starting state.

You must either set the Ethernet port to use the PostScript language and disable automatic language sensing, or define a DCPS$*queuename*_NO_SYNC system logical for the associated queue.

- If all the print jobs that the printer receives from its Ethernet port come from DCPS, including PCL jobs that use the printer's native PCL 5e interpreter, do the following:

  Set the printer's Ethernet port System Language to PostScript and turn off Language Sensing. You change these settings from the interface menu on the printer console, as described in the *LN17ps User Guide*.

- If any of the print jobs that the printer receives from its Ethernet port do not contain PostScript data (for example, they contain PCL or ASCII data) and DCPS is not the source of such data, do the following:

  Enable Language Sensing on the the printer's Ethernet port. Define a DCPS$*queuename*_NO_SYNC system logical for the associated queue as described in Section 3.4.3.

10.9.2 Incorrect Sheet Count

The sheet count reported on the job trailer page and in the OpenVMS accounting file may be several sheets too few due to a limitation with the LN17ps printer. There is no known workaround.

10.9.3 Downloading and Deleting Fonts

You may download or delete fonts from the LN17ps printer's optional hard drive using the FONT_DOWNLOADER.COM procedure described in Appendix C.

10.9.4 Colored Separator Pages and Tray Switching

The LN17ps can switch between input trays when a specified tray becomes empty. By default, tray switching is disabled. If you currently specify colored separator pages by using the DCPS$*queuename*_SEPARATOR_PAGE logical, you may want to ensure that tray switching is disabled.

You disable tray switching from the printer console, under the PostScript menu. See the *LN17ps User Guide* for more information.

Use one of the following PostScript tray numbers as the value of the DCPS$*queuename*_SEPARATOR_PAGE logical:

0	Main tray
1	Front tray
2	Lower 1 tray
3	Lower 2 tray

10.10 DIGITAL Laser Printer LN20

10.10.1 Incorrect Sheet Count

The sheet count reported on the job trailer page and in the OpenVMS accounting file is incorrect due to a limitation with the LN20 printer. There is no known workaround. The LN20 has, however, an accounting feature that can be used to track printer utilization.

10.11 DIGITAL Laser Printer LN40

10.11.1 Incorrect Sheet Count

The sheet count reported on the job trailer page and in the OpenVMS accounting file is incorrect due to a limitation with the LN40 printers. There is no known workaround. The LN40 has, however, an accounting feature that can be used to track printer utilization.

10.11.2 First Job May Be Offset Incorrectly

The first DCPS job to print to the LN40 after the printer is powered on may jog incorrectly. This occurs only if the LN40 is configured with OFFSET STACKING set to ON and COLLATION set to OFF.

10.12 Compaq and DIGITAL Laser Printer LNC02

10.12.1 Minimum Firmware Version

To use the LNC02 with the Raw TCP/IP protocol from DCPS, the printer must be running a minimum firmware version of **System Release 1.1.1, Revision 3.11**. This firmware version number is displayed on the printer's startup page.

10.12.2 Incorrect Sheet Count

The sheet count reported on the job trailer page and in the OpenVMS accounting file is incorrect due to a limitation with the LNC02 printer. There is no known workaround. The LNC02 has, however, an accounting feature that can be used to track printer utilization.

10.13 DIGITAL PrintServer 17 Printer

10.13.1 Colored Separator Pages and Tray Switching

PrintServer Software, Version 5.0, adds input tray failover to the PrintServer 17 series printers. This feature allows the printer to automatically switch to another input tray containing the same size media when the current tray becomes empty. This feature is *enabled* by default.

If you currently use colored flag pages, you may want to disable this feature. To disable input tray failover, perform the following steps:

1. Edit LPS$SUPPORT:LPSDEFAULTS.<printer name>
2. Search for the /TraySwitch parameter:

```
/TraySwitch true  % Controls input tray failover.
                  % false = disable
                  % true = enable
```

3. Change the value of the TraySwitch parameter from "true" to "false". PostScript is case sensitive; the only valid values are "true" or "false".

```
/TraySwitch false % Controls input tray failover.
                  % false = disable
                  % true = enable
```

4. Enable the changes by issuing the reconfigure command from the remote console facility.

```
$ MCR LPS$CONSOLE <printer name>
LPS> PRIV
Password: <password>
LPS> RECONFIG
LPS> EXIT
```

Refer to the *DEC PrintServer Supporting Host Software for OpenVMS Management Guide* for additional information.

10.14 HP LaserJet IIID Printer

10.14.1 Job Remains in Starting State

The DCPS$*queuename*_NO_SYNC logical can be used to solve reported problems printing to HP LaserJet IIID printers with HP-supplied PostScript Level 2 cartridges. Those cartridges have a known problem where they corrupt status messages they send to a host. This can cause jobs to get stuck in the "starting" state when DCPS tries to use its synchronization sequence. See Section 3.4.3 for more information.

10.14.2 Incorrect Sheet Count on Duplex Jobs

The HP LaserJet IIID and several other HP LaserJet printers do not internally count physical sheets but instead count pages imaged. Therefore the "Sheets printed" data of the trailer page will reflect the number of images processed. For example, a six-page print job with burst and trailer pages enabled and `/PARAMETERS=(SIDES=2)` specified will show "Sheets printed" as eight when only five sheets are printed.

10.15 HP LaserJet IIISi Printer

10.15.1 Incorrect Sheet Count on Native PCL Jobs

The HP LaserJet IIISi printer does not keep track of the sheet count while printing native PCL files. The sheet count reported at the end of the job, both on the trailer page and to the OpenVMS accounting system, includes only those sheets printed in PostScript mode, such as the job separation pages. There is no known workaround for this problem.

10.15.2 Incorrect Sheet Count on Duplex Jobs

The HP LaserJet IIISi printer exhibits the same behavior with sheet count as mentioned in Section 10.14.2.

10.16 HP LaserJet 4SiMX Printer

10.16.1 Incorrect Sheet Count on Duplex Jobs

The HP LaserJet 4SiMX printer exhibits the same behavior with sheet count as mentioned in Section 10.14.2.

10.17 HP LaserJet 5M Printer

10.17.1 Problems Selecting an Input Tray

DCPS may ignore explicit INPUT_TRAY parameter values for the HP LaserJet 5M printer, instead utilizing paper from another input tray. DCPS may also report that TRAY_1 is not available, even though the tray is a standard tray, when tray 1 is empty.

Both classes of problems are related to the printer attempting to select an alternate input tray if the desired tray is empty or otherwise not satisfactory. To avoid these problems, use the HP 5M console to specify that tray 1 is a "cassette" and to lock out all but one of the available input trays. Refer to the printer's user manual for more information.

10.17.2 Incorrect Sheet Count on Duplex Jobs

The HP LaserJet 5M printer exhibits the same behavior with sheet count as mentioned in Section 10.14.2.

10.18 HP LaserJet 5SiMX Printer

10.18.1 Job Trailer Pages Print in Next Bin

If the network manager has placed the mailbox bins into "job separator mode" using the administration software supplied with the printer, the DCPS job log and trailer pages print in the next bin, separated from the rest of the job.

10.18.2 Tray Is Not Available Due to Lack of Memory for Loaded Paper

If an input tray is loaded with a paper size that cannot be printed with the current memory configuration, DCPS reports the tray as not available. (Refer to the HP5SiMX users's guide for memory requirements.)

10.18.3 Duplex Not Supported Due to Lack of Memory for Loaded Paper

If an input tray is loaded with a paper size which cannot be printed in duplex mode with the current memory configuration, DCPS reports that duplex is not supported. (Refer to the HP5SiMX users's guide for memory requirements.)

10.18.4 Incorrect Sheet Count on Duplex Jobs

The HP LaserJet 5SiMX printer exhibits the same behavior with sheet count as mentioned in Section 10.14.2.

10.19 HP LaserJet 4000, 4050 and 5000

10.19.1 Minimum Firmware Version

To use an HP LaserJet 4000 or 5000 printer from DCPS, the printer must be running a minimum firmware version of **19980714 MB3.68**. To use an HP LaserJet 4050 printer, it is recommended that the printer be running a minimum firmware version of **19991030 MB6.30**. This firmware version number is displayed as *Firmware Datecode* on the printer's configuration page.

If your printer is running an older version of firmware, contact HP and request the proper version. The new firmware will be sent on a SIMM to be installed in your printer.

10.20 HP LaserJet 8000, 8100 and 8150

10.20.1 Optional Mailbox

DCPS numbers the optional mailbox bins on the HP LaserJet 8000 printer from 1-5, 1-7 or 1-8, depending on the particular option installed. This is consistent with the numbers molded into the plastic beside the bins. The printer's console, in contrast, refers to these same bins as numbers two through nine. Refer to the *HP LaserJet User Guide* for your printer model for more information about the numbering and purpose of trays with different options and configurations.

10.20.2 Problems Starting Queues

Some models in this series may not allow DCPS jobs to start. To resolve this, either set the printer to PostScript mode or suppress DCPS's PostScript synchronization. See the *DECprint Supervisor for OpenVMS Release Notes* or the *OpenVMS System Manager's Reference Manual* for more information.

10.20.3 Minimum Firmware Version

To use a HP LaserJet 8000 printer from DCPS, the printer must be running a minimum firmware version of **19980610 MB4.28**. This firmware version number is displayed as *Firmware Datecode* on the printer's configuration page.

If your printer is running an older version of firmware, contact HP and request the proper version. The new firmware will be sent on a SIMM to be installed in your printer.

10.21 HP XL300 Printer

10.21.1 Communication Problem

If a file printed to the XL300 printer contains multiple userdata messages that are returned in quick succession, some messages may be lost, and others returned incorrectly. Also, occasionally, messages that the DECprint Supervisor wants returned to it will get garbled. This will result in spurious messages to the user's terminal (if /NOTIFY is set). Otherwise, the job prints correctly.

10.22 Lexmark Optra Rt+ Printer

10.22.1 Tray Linking and INPUT_TRAY

If tray linking is enabled by the printer console, the linked trays cannot be selected individually using the INPUT_TRAY parameter. Specifying any linked tray in the INPUT_TRAY parameter causes the printer to select among the linked trays in accordance with its own algorithm.

10.23 Lexmark Optra S

10.23.1 Problems Starting Queues

Some models in this series may not allow DCPS jobs to start. To resolve this, either set the printer to PostScript mode or suppress DCPS's PostScript synchronization. See the *DECprint Supervisor for OpenVMS Release Notes* or the *OpenVMS System Manager's Reference Manual* for more information.

10.24 Tektronix Phaser

10.24.1 Printer Configuration Settings

You must change the following AppSocket settings when using Phaser printers with DCPS:

Table 10–3 Tektronix Phaser Configuration Settings

AppSocket Setting	Value
Interpreter	PostScript
Filtering	Interpreter-Based

11
Troubleshooting Procedures

This chapter contains troubleshooting procedures for diagnosing error conditions on the printer system.

When a printer problem occurs, information may be displayed on the user's terminal if the /NOTIFY qualifier is included on the PRINT command line. This information may indicate the cause of the failure.

Check the job trailer page from the print job, which shows some of the messages that result from printing. Problems with the print files are indicated on a file error page (see Section 6.6).

When a printing system problem occurs, examine the console output or the OPERATOR.LOG file for operator communication manager (OPCOM) messages. If your terminal is not running OPCOM, use REPLY/ENABLE to enable PRINTER and CENTRAL messages. Restart the symbiont, and reprint the job. Then you can read the relevant messages. This procedure requires OPER privileges. Printer messages are listed in the *DECprint Supervisor for OpenVMS User's Guide*.

11.1 What to Do if a Serial Printer Is Not Printing

When you examine the OPCOM messages, look for a message from the printer indicating NOTREADY. This message indicates that the printer is unable to acknowledge any queries from the system. Check for the following:

- Faulty communication line or cable
- Incorrect port baud rate setting
- Incorrect switch settings or front panel settings
- Excessive line noise resulting in lost response from the printer
- No power to the printer
- Faulty connector or incorrect type of connector
- Incorrect bits/character, incorrect parity, or both

11.1.1 What to Do if a Locally-Connected Serial Printer Will Not Start Printing

The steps in this section apply to any serial printer on a local line.

Step 1: Print a test page

Manually print a test page on your printer, following instructions in your owner's manual.

If able to print a test page, go on to step 2 to check the printer hardware and software configurations. If the printer does not produce a test page, check the printer hardware.

- Is the power on?
- Is the printer on line?
- What is the status of the print engine?

Step 2: Check the printer hardware and software configurations

The configuration settings on the printer and in the software associated with the printer must be the same. To verify that the settings match, check a printed summary sheet or the printer console or switches to verify that the settings are consistent for the following settings:

- Paper size
- Communication: 9600 baud (or appropriate baud rate)
- Eight bits, no parity (required)
- Flow control

Refer to the printer owner's manual for information on how to change these settings.

Check the terminal device characteristics of a directly-connected serial printer by issuing the following command on the node of the device:

```
$ SHOW TERMINAL device-name[:]
```

The variable *device-name* is the device name in the printer startup file in parameter **p2** of the execution queue definition.

Check for the following characteristics:

- Eight bits
- Parity: None
- Input speed: 9600 baud

- Output speed: 9600 baud

The summary sheet and the terminal settings should be the same.

If your printer interface runs at a different speed, make sure you set the same configuration switch settings and device characteristics.

If the printer is connected directly to the host, check the baud rate setting in the printer startup command file. If you did not enter a baud rate in parameter **p6** of the execution queue definition, the startup procedure sets the printer speed at 9600 baud. Refer to the SET TERMINAL command in the *OpenVMS DCL Dictionary* for information on changing the system's interpretation of the device characteristics.

If your printer is connected by a LAT device to a local area Ethernet, see Section 11.1.3.

If the settings agree and the job still does not print, go to step 3.

Step 3: Check communications software

Test the operation of the communications equipment by attempting to send data directly to the device. To perform this procedure, make sure the queue is paused (see Section 5.7).

The device must not be spooled to accomplish this procedure. If the device is spooled, enter the following command:

```
$ SET DEVICE LTAnnnn:/NOSPOOL
```

To test the communications setup, issue the SET HOST/DTE command to the printer. Use the commands in the following examples:

```
$ SET HOST/DTE LTA9092:
Connection established, type ^\ to exit
Ctrl/T
%%[ status: idle ]%%
```

After you press Ctrl/T, you should receive a message in the form of %%[Status: *description*]%%. If you receive this message, the connection to the printer is established and working.

If no message of this type is displayed, enter the commands in the following example:

```
^\
$ COPY TT: LTA9092:
showpage
Ctrl/Z
$
```

The test is successful if a page of paper is ejected from the printer. If no paper is ejected, there is a faulty connection with the printer. In this case, check the communications cables. Then try the commands in the first example again.

If the COPY command succeeds, but the SET HOST command fails, check the communications cables inbound from the printer to the host node for a faulty connection.

Step 4: Check DCPS$STARTUP.COM

Make sure that the DCPS$STARTUP.COM file reflects your print queue needs and that the changes are appropriate for your printer. To check the printer execution queue characteristics, enter the following command, inserting the name of the printer execution queue:

```
$ SHOW QUEUE/FULL exec-queue-name
```

For example, the characteristics for the printer execution queue TXA1_LN03R on host EDEN are as follows:

```
$ SHOW QUEUE/FULL TXA1_LN03R

 Printer queue TXA1_LN03R, on EDEN::TXA1:
 /BASE_PRIORITY=4 /FORM=DCPS$DEFAULT /LIBRARY=DCPS_LIB /OWNER=[SYSTEM]
 /PROCESSOR=DCPS$SMB /PROTECTION=(S:E,O:D,G:R,W:W) /SCHEDULE=(NOSIZE)
 /SEPARATE=(BURST,TRAILER)
$
```

Specifically, check the following:

- Make sure that /PROCESSOR=DCPS$SMB.
- Check that /FORM=DCPS$DEFAULT, or matches the changes you made to DCPS$STARTUP.COM. Ensure that the printer is capable of printing according to the form definition.
- Make sure that the /LIBRARY qualifier value is the same as parameter **p3** in DCPS$STARTUP.COM and if it is a logical name, that the logical name has been defined.

If the queue characteristics do not match those defined in DCPS$STARTUP.COM, stop the printer execution queue.

Next, execute the DCPS$STARTUP.COM file, as follows:

```
$ @SYS$STARTUP:DCPS$STARTUP
```

Recheck the execution queue characteristics. If the characteristics are correct and the job still does not print, go to step 5.

Step 5: Check queue logical defaulting

Use the following command to check the values of queue default parameters in the DCPS$STARTUP.COM file, in **p4** of the execution queue definition, and in parameter **p3** of the generic queue definition.

```
$ SHOW LOGICAL DCPS$queuename_PARAMETER
```

Step 6: Check the queue configurations

The values provided in DCPS$STARTUP.COM are not validated, but simply passed as parameters to the appropriate OpenVMS commands and utilities. Therefore, the OpenVMS commands and utilities detect and report any errors directly. Refer to the *OpenVMS System Messages: Companion Guide for Help Message Users* for an explanation of error messages issued by the following DCL commands:

- INITIALIZE/QUEUE
- SET TERMINAL
- SET DEVICE

Note

To debug DCL command procedures and record the information in a file, you can use the following commands:

```
$ SET HOST 0/LOG
$ SET VERIFY
```

Alternatively, you can set parameter **p8** in the execution queue definition in DCPS$STARTUP.COM to 1 for automatic recording.

11.1.2 What to Do if a Locally-Connected Serial Printer Has Stopped Printing

When your printer stops printing, follow these steps:

- If your printer fails consistently, follow the steps in Section 11.1.1.
- If your printer fails occasionally, follow the steps in this section.

After checking all messages, including the notification messages from the PRINT command, the console output, and the OPCOM log, go to step 1 if the cause of the problem is not apparent.

Step 1: Print the IVP data sheets

Print the following Installation Verification Procedure (IVP) files from SYS$COMMON:[SYSTEST.DCPS]:

DCPS$IVP_ANSI.DAT
DCPS$IVP_POST.DAT
DCPS$IVP_REGIS.DAT
DCPS$IVP_TEK4014.DAT
DCPS$IVP_PCL.DAT
DCPS$IVP_PROPRINTER.DAT

Remember to use the appropriate DATA_TYPE parameter value, indicated in the file name following the underscore, for each of the files. For example, to print DCPS$IVP_REGIS.DAT, use the following PRINT command:

```
$ PRINT/QUEUE=queue-name/PARAMETERS=(DATA_TYPE=REGIS)-
/NOTIFY SYS$COMMON:[SYSTEST.DCPS]DCPS$IVP_REGIS.DAT
```

If the files are not printed, go to step 2 to check the files for user error.

If any of the IVP files are not printed, check to see if the translator execution files exist, using the following command:

```
$ DIR SYS$SHARE:TRN$*.*

Directory SYS$COMMON:[SYSLIB]

TRN$ANSI_PS.EXE;     TRN$DDIF_PS.EXE;     TRN$REGIS_PS.EXE;
TRN$TEK4014_PS.EXE;  TRN$PCL_PS.EXE;      TRN$PROPRINTER_PS.EXE;

Total of 6 files.
```

If the correct files are present, go to step 2.

If any files are missing, reinstall the DECprint Supervisor software.

Step 2: Check files for user error

If a particular file fails to print, examine the trailer page from the print job for messages that indicate the cause of the failure. For an explanation of, and recovery procedures for the error messages, see the *DECprint Supervisor for OpenVMS User's Guide*.

If the file is a PostScript file, an error exists in either the PostScript file or in the application that generated the PostScript file. If the application is supplied by Compaq, submit a Software Performance Report (SPR).

If the file is other than a PostScript file, an error exists in the translation process. If the translator is supplied by Compaq, submit a Software Performance Report.

Sometimes, when the serial communication cable between the printer and the host is disconnected and later reconnected, the active print job displays the status Printing when nothing is happening at the printer. Power-cycle the printer, then resubmit the lost print job.

Note

When reconnecting the printer to the host, turn off and then turn on the printer. Turning the printer off and on ensures proper synchronization between the print symbiont and the printer.

11.1.3 What to Do if a LAT Printer Is Not Printing

A network environment allows several separately managed systems to access the same printer. Therefore, when the printer is not printing, you must determine which node has control of the printer.

The remaining sections discuss the following steps in troubleshooting the printer in a network environment:

1. Determining the node that controls the printer:
   - Determine the printing node
   - Determine the LAT node and port name
   - Check the port and system server names
   - Determine the host controlling the printer
2. Troubleshooting the printer:
   - Check port characteristics
   - Follow procedures in Section 11.1.1
3. Other troubleshooting hints:
   - NOTREADY status
   - Common error messages and their probable causes

11.1.3.1 How to Determine Which Host Controls the Printer

A network printer may fail to print if another node is accessing the printer, or if the printer has stopped printing. Perform the following steps to determine which host has control of the printer.

Step 1: Determine your printing node

To determine which node runs your printer, issue the following command, inserting the name of the print queue you use:

```
$ SHOW QUEUE/FULL queue-name
```

From the first line of the following sample display, you determine that FIERY is the node that runs your printer and LTA546 is the application port associated with the print queue:

```
Printer queue LN03R3, on FIERY::LTA546, mounted form DCPS$DEFAULT
                                                    (stock=DEFAULT)
    /BASE_PRIORITY=4 /FORM=DCPS$DEFAULT (stock=DEFAULT)
    /NOENABLE_GENERIC /LIBRARY=DCPS_LIB lowercase /OWNER=[SYSTEM]
    /PROCESSOR=DCPS$SMB /PROTECTION=(S:E,O:D,G:R,W:W) /SCHEDULE=(NOSIZE)
    /SEPARATE=(BURST,TRAILER)
$
```

Perform steps 2 and 3 on the node (FIERY) that runs the printer.

Step 2: Determine LAT node and port name to which the printer is connected

Look in the LAT startup file SYS$STARTUP:LAT$SYSTARTUP.COM. The SET PORT command associates the application port (LTA*d*) with a specific port (/PORT=*port_name*) on the server (/SERVER=*server_name*).

```
CREATE PORT LTA546: /NOLOG  /APPLICATION                ! LN03R3
SET PORT LTA546: /APPLICATION /QUEUE /NODE=TAS204 /PORT=PORT_7
```

Note

The port must be set with queuing enabled (/QUEUE) and as an application port (/APPLICATION).

Make sure that SYSTARTUP_VMS.COM invokes LAT$STARTUP.COM.

Step 3: Check port and server system names

Ensure that port and server system settings are the same as those in the SYS$STARTUP:LAT$SYSTARTUP.COM. Use the LATCP SHOW PORT command to look at the application port (LTA*d*) as follows:

```
$ RUN SYS$SYSTEM:LATCP
LCP>SHOW PORT lta546
Local Port Name = LTA546:  application
```

```
Specified Remote Node Name = TAS204
Specified Remote Port Name = PORT_7
Actual Remote Node Name = TAS204
Actual Remote Port Name = PORT_7
Link Name = LAT$LINK
```

Step 4: Determine which host controls the printer

You can determine which host controls the printer by logging in to a terminal that is connected directly to a DECserver or by connecting to a LAT device over the network. If you have direct access to the DECserver port, go directly to step 4B.

Step 4A: Connect to the LAT device

Use either the Network Control Program (NCP) or Terminal Server Manager (TSM) to connect to the DECserver device over the network.

To use NCP, issue the following commands:

- To determine the type of service circuit, for example UNA–0 or QNA–0, use the following commands:

  ```
  $ MCR NCP
  NCP> SHOW KNOWN CIRCUITS
  ```

- To determine the 48-bit Ethernet address (for example, 08–00–2B–05–C7–05), use the following commands:

  ```
  $ MCR LATCP
  LCP> SHOW NODE server-name
  ```

  For example, to get the Ethernet address for TAS200PSSA, enter the following command:

  ```
  LCP> SHOW NODE TAS200PSSA

  Node Name:   TAS200PSSA                     LAT Protocol Version: 5.1
  Node State:  Reachable                      Address: 08-00-2B-05-C7-05
  Node Ident:  LN03R V2.0 DECServer 200

  Incoming Connections:   Enabled

  Circuit Timer (msec):        80
  Multicast Timer (msec):      30

  Service Groups:   15, 31-32  99

  Service Name     Status       Rating    Identification
  BURNET           Available      0
  ```

  In this example, the Ethernet address 08-00-2B-05-C7-05 is displayed.

You can use the service circuit name and the Ethernet address to make a connection to the LAT node using the following command:

```
$ MCR NCP
NCP> CONNECT VIA service-circuit PHYSICAL ADDRESS nn-nn-nn-nn-nn-nn
```

After entering the NCP CONNECT command, press Return until you get the pound sign (#) prompt. At this prompt type the password (ACCESS) to get the Local> prompt:

```
#
username: username
Local>
```

Step 4B: At the LAT console port

After making your connection and logging in to the LAT console, enter the following commands:

```
Local> SET PRIVILEGED
Password>
Local> SHOW SESSIONS PORT_7
```

The default password is SYSTEM.

The following example shows a SHOW SESSIONS PORT command on a DECserver 200 that tells you that a remote system HAILEY controls port 7.

```
Local> SHOW SESSIONS PORT 7
Port 7:  (Remote)      Connected       Current Session 1
-Session 1: Hailey     Connected       Pasthru
```

If your system runs the TSM software, issue the following commands:

```
$ RUN SYS$SYSTEM:TSM$MAIN
TSM> USE SERVER tas204
TSM> SET PRIVILEGED
Password>
TSM> SHOW SESSIONS PORT_7
```

Note

To run the TSM program, you need read access to the TSM management directory file and OPER privileges. For more information, refer to the *Guide to Terminal Server Manager*.

11.1.3.2 How to Troubleshoot Printer Communications Problems

After determining which system controls the printer port, follow these steps.

Step 1: Check port characteristics

Compare the LAT port characteristics with those listed in the *DECprint Supervisor for OpenVMS Software Installation Guide*. To view the port characteristics, issue the SHOW PORT command at the Local> prompt or the TSM> prompt.

Step 2: Use procedures in Section 11.1.1

Follow the steps in the appropriate section:

- For a new printer, Section 11.1.1
- For a printer that has stopped printing, Section 11.1.2

If you follow these procedures and the printer is not printing, go to step 3.

Step 3: Regain control of the LAT port

You may need to disconnect a symbiont process that controls the port connected to the printer. For example, an unsupported version of the symbiont software might not disconnect after it gains control of the port. Disconnect the symbiont process with the following command:

```
Local> SET PRIVILEGED
Password>
Local> LOGOUT PORT port_number
```

You need privileged status on the LAT node to execute this command.

11.1.3.3 Common LAT Error Messages

The following list contains common error messages received in a network environment. The error message prefix is DCPS$. The severity level is not indicated. The messages are arranged alphabetically by *ident-string*. (Refer to the *DECprint Supervisor for OpenVMS User's Guide* for an explanation of the error message format.)

DCPS$_CONAPPLICATION, Connection request is not to a LAT applications port

Explanation: This message usually occurs when a LAT port is not reserved as an applications port, and another device is connected to the port that is requested by the printer. The LAT configuration file LAT$SYSTARTUP.COM should contain a line similar to the following with the /APPLICATION parameter.

```
SET PORT LTAnnn:/NODE=server-name/PORT=port-name/QUEUE/APPLICATION
```

To avoid this problem, specify a higher port number for the printer.

DCPS$_CONTERMINATED, Connection abnormally terminated

Explanation: This message occurs when communication to the LAT node is interrupted. This results in a stopped queue. Check the following:

- Power is supplied to the LAT device.
- Printer port is not logged off.
- All connections from LAT device to the Ethernet cable are working.

DCPS$_CONTIMEOUT, Connection timed out, server not available, or incorrect server name specified

Explanation: This message occurs when the server name is not recognized. This problem may indicate the collision of user terminal space and the printer port.

Verify that the server name connected to the printer port is correct. Compare the server name specified in the LAT configuration file LAT$SYSTARTUP.COM with the server name on the LAT device. LAT$SYSTARTUP.COM should contain a line similar to the following:

```
SET PORT LTAxxx:/NODE=server_name/PORT=port_name/QUEUE/APPLICATION
```

Use the SHOW PORT command to find the server name associated with the printer port:

```
Local> SHOW PORT port-name
```

DCPS$_LRJACCESSDENIED, Access denied

Explanation: This message usually occurs when the group code specified in LAT$SYSTARTUP.COM does not match one of the groups on the LAT device connected to the printer. Thus, the printer software does not have access to the LAT port. The LAT configuration file LAT$SYSTARTUP.COM should contain a line similar to the following:

```
SET NODE/GROUP=group-list/ENABLE
```

Compare groups, /GROUP=*group-list*, set in LAT$SYSTARTUP.COM with those set on the LAT device (SHOW PORT command).

DCPS$_LRJDELETED, Queue entry deleted by server

Explanation: This message occurs when someone manually terminates the connection to the LAT device.

DCPS$_LRJILLEGAL, Illegal request parameter

Explanation: This message indicates that an internal LAT error has occurred. Submit a Software Performance Report.

DCPS$_LRJINUSE, Port or service in use

Explanation: This message usually occurs on a LAT port when *port-name* is not set with the queuing parameter (/QUEUE) enabled or when the queue limit is too small. On the LAT device, enter the following command:

```
SET PORT port-name QUEUE ENABLE
```

DCPS$_LRJNAMEUNKNOWN, Port Name is unknown

Explanation: This message occurs when the port name specified in the LAT configuration file LAT$SYSTARTUP.COM is not known on the server. Compare the port name specified in the LAT configuration file LAT$SYSTARTUP.COM with the printer port name associated with the server. LAT$SYSTARTUP.COM should contain a line similar to the following:

```
SET PORT LTAnnn:/NODE=server-name/PORT=port-name/QUEUE/APPLICATION
```

Find the name of the printer port associated with the server, by issuing the following command:

```
Local> SHOW PORT port-number
```

DCPS$_LRJNOTOFFERED, Service is not offered on the requested port

Explanation: This message usually occurs when the access mode is not set to REMOTE on the LAT port. Use the SET and DEFINE commands as follows to set the access mode for the port:

```
Local> SET PORT port-number ACCESS REMOTE
Local> DEFINE PORT port-number ACCESS REMOTE
```

Note

For more information, refer to the *DECprint Supervisor for OpenVMS User's Guide* or to the troubleshooting guide for your LAT device.

11.1.4 How to Eliminate Excess Login Dialog on Serial Printers

Serial printers transmit unsolicited data to the host system when power-up initialization occurs. The OpenVMS operating system normally interprets unsolicited data from a terminal device as a login request. The printer software startup file sets the SECURE_SERVER terminal characteristic for all printer terminal devices on the host system. SECURE_SERVER prevents the OpenVMS host and the printer from engaging in a potentially endless login dialog.

To eliminate login dialog, set terminal characteristics for terminal devices by using the following procedures in this order:

1. SYSGEN AUTOCONFIGURE
2. SYSTARTUP_VMS
3. DCPS$EXECUTION_QUEUE.COM

AUTOCONFIGURE uses SYSGEN parameters to set default terminal characteristics for all terminal devices on the system. Your system will not encounter the login dialog problem if SECURE_SERVER is set with SYSGEN. The SYSGEN parameter that accomplishes this is TTY_DEFCHAR2. Refer to the *OpenVMS Upgrade and Installation Manual* for information on setting SYSGEN parameters.

The system startup procedure may also set terminal characteristics. Since this command file executes prior to the printer startup file, your system will be less vulnerable to the login dialog problem if SECURE_SERVER is set for printer terminal devices within the SYSTARTUP_VMS file.

DCPS$EXECUTION_QUEUE.COM (the printer execution queue command file) sets the SECURE_SERVER terminal characteristic for printer terminal devices by default. This file is provided in the software kit.

If your printer is configured on a LAT device in a local area Ethernet, set the LAT port and the terminal server characteristics for the printer to minimize login dialog. Refer to the *DECprint Supervisor for OpenVMS Software Installation Guide* for LAT port characteristics.

11.2 What to Do if a PrintServer Printer Is Not Printing

The following troubleshooting procedures can help you diagnose error conditions that can occur during installation of DECprint Supervisor software for PrintServer printers.

If the printer is not printing, check the OPCOM messages. If the cause of the failure is not immediately apparent, check the queue characteristics, as follows:

1. Execute the following instruction, inserting the name of the PrintServer device queue:

   ```
   $ SHOW QUEUE queue-name/FULL
   ```

For example, the queue characteristics for the PrintServer device queue LPS40$FANG on node VIPER are as follows:

```
$ SHOW QUEUE LPS40$FANG/FULL

Printer queue LPS40$FANG, on VIPER::FANG, mounted form DCPS$$FORM
(stock=DEFAULT)
    /BASE_PRIORITY=4 /FORM=DCPS$DEFAULT /LIBRARY=DCPS_LIB /OWNER=[SYSTEM]
    /PROCESSOR=DCPS$SMB /PROTECTION=(S:E,O:D,G:R,W:W) /SCHEDULE=(NOSIZE)
    /SEPARATE=(FLAG,TRAILER)
$
```

2. If the queue characteristics do not match those recorded in DCPS$STARTUP.COM, delete the device queue and all generic queues that point to it. Then execute the DCPS$STARTUP.COM file. DCPS$STARTUP is located in SYS$STARTUP:. For example:

```
$ STOP/RESET/QUEUE generic-queue-1
$ STOP/RESET/QUEUE other-generic-queues
$ STOP/RESET/QUEUE pserver-name
$ DELETE/QUEUE generic-queue-1
$ DELETE/QUEUE other-generic-queues
$ DELETE/QUEUE pserver-name
$ @SYS$STARTUP:DCPS$STARTUP
```

   Recheck the queue characteristics. If they are correct and the job still does not print, refer to the *DEC PrintServer Supporting Host Software for OpenVMS Management Guide* for further information.

11.3 What to Do if Printing Is Slower than Expected

Slower printing speeds can result from:

- Printing of complex ANSI jobs from applications
- Printing of complex PostScript jobs
- Occurrence of ANSI translator prologue mismatch
- Changing the printer password from the default (refer to the *DECprint Supervisor for OpenVMS Software Installation Guide*).

Complex ANSI jobs include those that use many downloaded fonts on a page. These jobs always take longer to print.

For serial printers, a 30-second delay before the printing of ANSI jobs indicates an ANSI prologue mismatch between the ANSI translator and the print job. On a serial printer, power cycle the printer (turn it off and then on) to load the appropriate prologue. The first ANSI print job is delayed by the loading of the prologue, but subsequent ANSI print jobs are printed more efficiently.

If your printer is connected to multiple nodes running different versions of the printing system, power cycling the printer may not eliminate the 30-second delay. The node that connects to the printer first persistently loads its prologue. The other nodes must load the prologue with every print job. To eliminate the delay in this case, every node should run the same version of the DECprint Supervisor software.

11.4 What to Do if Layup Definition Files Are Not Found

DECprint Supervisor software places the following sample layup definition files in [SYSHLP.EXAMPLES.DCPS]:

LPS$HOLES.LUP
LPS$SINGLEHOLES.LUP
LPS$DOUBLEHOLES.LUP
LPS$NUP.LUP
COLOR-PRINTER-FULL-PAGE.LUP
PROPRINTER-FULL-PAGE.LUP

Make sure that the layup directory logical name, DCPS$LAYUP, points to SYS$SYSDEVICE:[SYSHLP.EXAMPLES.DCPS] or to the directory that contains the .LUP sample files on all nodes in the cluster.

11.5 What to Do if Files Are Printed with Unexpected Results

The DECprint Supervisor software attempts to print every file in every print job even if there are problems in the specification of print parameters and print job attributes. Print queues with erroneous default parameters can still print files, but all the print parameters are not effective and messages are generated indicating the problem, as described in Section 11.5.1.

In cases where the file is printed using the wrong data type translator, the file data type has not been correctly determined by the DECprint Supervisor software. The methods for solving problems with automatic data type detection are described in Section 11.5.2.

11.5.1 What to Do if Default Queue Parameters Are Not Effective

If you enter a parameter in DCPS$STARTUP.COM incorrectly, print jobs sent to that print queue are printed, but the invalid parameter and the parameters following it are not applied to the print job.

If an invalid print parameter is included in the queue definition, the printing system generates an error message that is displayed on your screen and printed on the job trailer page for every print job sent to the associated queue. The parameters that are not processed take the default settings.

In the following example, there is an extra L in the argument to the second parameter, PAGE_ORIENTATION. Therefore, the printing system ignores the second parameter, NUMBER_UP=2. Only the first parameter, SHEET_ SIZE=B, is processed.

```
@sys$startup:dcps$generic_queue -     ! Landscape queue
     DCPS$WIDE$PRINT -                ! P1 - Generic queue name
     TEK4014_TTB4 -                   ! P2 - /GENERIC = execution queues
     "SHEET_SIZE=B,PAGE_ORIENTATION=LLANDSCAPE,NUMBER_UP=2"
                                      ! P3 - Default queue parameter
                                      ! P3 - Default queue parameter
```

For every print job for this queue, an error message similar to the following is displayed on the screen and printed on the job trailer page in the message section:

```
10-MAR-2001 15:21 %DCPS-E-PARSYNERR, Syntax error in the /PARAMETERS
qualifier at or near PAGE_ORIENTATION=LLANDSCAPE
```

11.5.2 What to Do if a File Data Type Is Not Recognized

If the DECprint Supervisor software fails to determine the data type of a print file correctly, the user can explicitly specify the DATA_TYPE parameter. If necessary, you can set up a generic queue for specific data types. All files printed to this queue will have the specified data type, unless the user explicitly specifies another data type using the DATA_TYPE parameter. Users can also specify the DATA_TYPE=AUTOMATIC parameter to explicitly specify automatic data type detection.

The automatic data type feature examines the following to determine the data type of the file:

1. The value of the DATA_TYPE parameter in the PRINT command
2. The queue default data type specified in the DCPS$STARTUP.COM file
3. OpenVMS file tags (for example, DDIF **stored_semantics** tags)
4. The contents of the file
5. The file extension

If the DECprint Supervisor software cannot determine the file data type from these steps, the default text data type is used. If no default text data type has been defined by the user or the system manager (see Section 4.2.2), the file is processed as ANSI. When the default text data type is used, the text can precede PostScript; the file is printed properly. However, the file may not be printed properly if any more text follows the PostScript data. In this case, it may be necessary to edit the file and print the text and PostScript data as separate files.

In general, though, users should not be encouraged to modify the contents of their files or the file extensions so that the data type can be determined. Instead, the application that generates the file may be examined and modified if necessary; or you can provide site-specific file extension files, default text data types, or generic queues with explicit default data types.

A

Printing System Management Commands

You use standard OpenVMS DCL commands to manage the DECprint Supervisor queues, jobs, and related system resources.

Note

Remember that the management commands only affect the system on which they are issued. A network printer can serve other systems as well, with each system having its own set of queues, jobs, forms, etc.

A.1 Overview of Management Commands

Table A–1 lists the commands used to manage print queues, print jobs, and related system resouces. More information for these commands can be found in the *OpenVMS DCL Dictionary*.

Table A–1 Printing System Management Commands

Command	Function
ASSIGN /MERGE	Removes jobs from one queue and puts them in another existing queue.
ASSIGN /QUEUE	Assigns a logical queue to an execution queue.
DEASSIGN /QUEUE	Deassigns a logical queue and stops the logical queue.
DEFINE /CHARACTERISTIC	Defines a queue characteristic name and number.
DEFINE /FORM	Defines a printer form name, number, and attributes.

(continued on next page)

Table A–1 (Cont.) Printing System Management Commands

Command	Function
DELETE /CHARACTERISTIC	Deletes the definition of a queue characteristic.
DELETE /ENTRY	Deletes one or more job entries from a queue.
DELETE /FORM	Deletes the definition of a form.
DELETE /QUEUE	Deletes a queue.
INITIALIZE /QUEUE	Not recommended for use with the DECprint Supervisor software.
SET ENTRY	Changes or deletes attributes of a job that is in the queue but not currently executing.
SET QUEUE	Changes the status and attributes of a queue.
SET QUEUE /ENTRY	This command has been superseded by the SET ENTRY command, which performs identical functions. Compaq recommends that you use the SET ENTRY command.
SET QUEUE /RETAIN	Retains print jobs upon completion or termination due to an error.
SHOW ENTRY	Display information about print jobs.
SHOW QUEUE	Displays information about queues and jobs.
SHOW QUEUE /CHARACTERISTICS	Displays information about queue characteristic names and numbers available on a queue.
SHOW QUEUE /FORM	Displays the names and numbers of the forms defined for your system.
START /QUEUE	Starts or restarts a queue.
START /QUEUE /MANAGER	Starts the system job queue manager and opens the queue file.
STOP /QUEUE	Pauses an execution queue.
STOP /QUEUE /ABORT	Stops the executing print job, but does not stop the queue.
STOP /QUEUE /MANAGER	Stops the system job queue manager and closes the job queue file.
STOP /QUEUE /NEXT	Stops the queue after the current job has finished printing.

(continued on next page)

Table A–1 (Cont.) Printing System Management Commands

Command	Function
STOP /QUEUE /REQUEUE	Stops the executing print job and requeues it to the specified queue, but does not stop the queue.
STOP /QUEUE /RESET	Stops a queue immediately and returns control to the system.

A.2 Use of SET PRINTER with DCPS

Because PostScript printers are controlled by the DECprint Supervisor software, the DCL SET PRINTER command has no meaning in a DECprint Supervisor environment. Print job characteristics for the DECprint Supervisor are set and displayed by other means.

Print job characteristics for DECprint Supervisor are determined by:

1. Parameters embedded in the job data
2. Parameters passed in the /PARAMETERS qualifier of the PRINT command
3. DEFINE /FORM qualifiers
4. For PrintServer printers, default parameters which are in the PrintServer configuration database
5. The default queue parameters, which are defined in the DCPS$STARTUP.COM file

Items 1, 2, and 3 in this list are controlled by the PostScript interpreter or the data syntax translator, depending on the type of job being processed. Item 4 is controlled by the PrintServer server management interface described in the *DEC PrintServer Supporting Host Software for OpenVMS Management Guide*.

Table A–2 shows the SET PRINTER qualifiers and the equivalent control in a DECprint Supervisor printing system.

Table A–2 SET PRINTER Qualifier Equivalents for DECprint Supervisor Queues

SET PRINTER Qualifier	Equivalent Control
/CR	Insertion of carriage return characters is controlled by the current data type translator.
/FALLBACK	Translation of DIGITAL multinational characters is controlled by the current font. If the character does not exist in the specified font, the font error character prints.
/FF	Mechanical form feeds are controlled by the current data type translator or the PostScript interpreter.
/LOWERCASE	The DECprint Supervisor printer is considered to be a lowercase printer. It does not translate lowercase to uppercase.
/PAGE	The number of lines printed on each page is controlled by the ANSI translator (ANSI files only). This characteristic is available through DEFINE /FORM.
/PASSALL	Whether the system interprets special characters or forwards them as 8-bit binary data is controlled by the current data type translator.
/PRINTALL	Whether the printer interprets special characters or prints their 8-bit binary equivalent is controlled by the current data type translator.
/TRUNCATE	Truncation of data that exceeds the limitation imposed by the /WIDTH qualifier is controlled by the form definition or the current data type translator.
/WIDTH	The number of characters allowed on each line of the currently installed media is controlled by the form definition, or a combination of the current data type translator and the current font.
/WRAP	Generation of a carriage-return/line-feed by the printer when it reaches the end of a line is controlled by the form definition or the current data type translator.

Note

Not all data type translators implement the preceding functions in the same manner; refer to a translator's documentation for specific information about its behavior.

B

Logical Names used by DCPS

This appendix provides some information about OpenVMS logical names that are used by the DECprint Supervisor for OpenVMS software.

Here are some guidelines for using these logical names:

- Any logical whose name begins with "DCPS" is only used by the DECprint Supervisor for OpenVMS software. Other logical names (for example, PSM$ANNOUNCE) may be used by and impact other components of your OpenVMS system.
- You should place your desired definitions for these logical names in DCPS$STARTUP.COM or in something that it invokes. The startup procedure template has comments about how to define some of these.
- Changes to some logical names have an immediate effect, while changes to others take effect only when a queue starts or when a DCPS symbiont process is first created. The ramifications of this are particularly significant if you are using multistreamed DCPS symbiont processes (see Section 3.4.1.2). You should assume that the symbiont reads all logical names only when it is first created, thus requiring you to first stop all queues and then retart them before your changes can take effect.
- You should define the desired logical names in the system table in executive mode (that is, using DEFINE/SYSTEM/EXECUTIVE).
- In a VMScluster environment, you should define the desired logical names on all nodes that utilize the DCPS software. To examine logical names defined by DCPS, you need to look on the node on which the DCPS symbiont process is running.
- Additional logical names may be listed in the *DECprint Supervisor for OpenVMS Release Notes*.

Below is a table of the logical names used by DCPS, their acceptable values, and a brief explanation of what they mean. There are also references to other sections of this document or other documents where you can find more information about the logical names.

Note

In the following table, *qn* is an abbreviation for the queue name.

Table B–1 DCPS Logical Names

Logical Name	Acceptable Values	Meanings and References
Logical names that provide information to DCPS		
DCPS$DEFAULT_TRANSLATOR	<set of translators>[1]	System wide default text data type; Section 4.2.2
DCPS_LIB[2]	search list	List of DCPS setup libraries and their data types; Section 7.4.2
DCPS$DEVCTL_CACHE	1	Enable system wide device control caching; Section 7.11
DCPS$LAYUP[3]	search list	Directory where layup files are stored; *DECprint Supervisor for OpenVMS Software Installation Guide*
DCPS$MAX_STREAMS	0..32	Number of queues per DCPS symbiont process; Section 3.4.1
DCPS$PURGE_TIME	delta time	Time to wait before purging working set; Section 3.4.4
DCPS$*qn*_DEFAULT_ TRANSLATOR	<set of translators>[1]	Queue specific default text data type; Section 4.2.2
DCPS$*qn*_DEVCTL_CACHE	1	Enable queue specific device control caching; Section 7.11

[1] <set of translators> = ANSI, AUTOMATIC, LIST, PCL, POSTSCRIPT, REGIS, TEK4014, etc.

[2] Defined with a default value in the DCPS$STARTUP.COM

[3] Defined by DCPS$REQUIRED.COM using information you supplied during the DCPS installation

(continued on next page)

Table B–1 (Cont.) DCPS Logical Names

Logical Name	Acceptable Values	Meanings and References
Logical names that provide information to DCPS		
DCPS$*qn*_DEVICE_NAME[4]	string	Actual device name associated with the queue when name is too long for INITIALIZE/QUEUE/ON qualifier (and SHOW QUEUE/FULL lists "DCPS$" as the device instead); Section 3.3.2
DCPS$*qn*_IGNORE_UNKNOWN_ USER	1	Disable unknown user error when username not found in UAF; Section 3.4.5
DCPS$*qn*_INTERRUPT_ WHEN_BUSY	1	Disable wait for serial printers to be "not busy"; Section 3.4.2
DCPS$*qn*_NO_SYNC	1	Disable usual synchronization on printers other than PrintServer printers; Section 3.4.3
DCPS$*qn*_OLD_ANSI_PAGE_ SIZES	1	Use old (pre-V1.1a) vertical spacing for A4 size in ANSI translator; Section 3.4.6
DCPS$*qn*_PARAMETER[4]	string	Default queue parameters; Section 3.3.4
DCPS$*qn*_SEPARATOR_TRAY	number	Tray number to take job burst and flag pages from; Section 6.2.3
DCPS$*qn*_STALL_TIME	delta time	Timeout before declaring a printer stalled; Section 5.12
DCPS$*qn*_SUPPRESS_ JOBTRAILER	1	Disable printing of job trailer; Section 6.2.2
PSM$ANNOUNCE	string	String which prints on separator pages; Section 6.4
Logical names that return information from DCPS		
DCPS$*qn*_PID		Process ID of DCPS symbiont controlling the queue; Section 5.8
DCPS$*qn*_STALLED		Reason for queue being stalled; Section 5.12

[4] Defined by DCPS$EXECUTION_QUEUE.COM

C

Downloading and Deleting Fonts

You may be able to use the SYS$COMMON:[SYSHLP.EXAMPLES.DCPS]FONT_DOWNLOADER.COM command procedure to list, download, and delete fonts on the optional hard drive on a printer. The procedure is known to work with the DEClaser 5100 and LN17ps printers, and may work with other printers as well.

To use the procedure, invoke it and follow the prompts that it gives you.

D

DECprint Supervisor (DCPS) and DECprint Printing Services Software (CPS)

This appendix explains the differences between the DECprint Supervisor software and the DECprint Printing Services software, and their ability to coexist. “DCPS” refers to the DECprint Supervisor for OpenVMS product; “CPS” refers to the DECprint Printing Services product.

D.1 DCPS/CPS Coexistence

DCPS software can coexist on the same system with CPS Version 4.0 or Version 4.1 software. The installation of DCPS software does not delete or modify components of CPS software. You may continue to run both products on the same system, or you may migrate the existing queue structure from the CPS product to the DCPS product.

D.2 Printer Support

D.3 DCPS$ Prefix

All file names, logical names, and messages for the DCPS product start with the DCPS$ prefix. This ensures that you can continue to use CPS software to drive some queues, and add the DCPS software to drive others. The default OpenVMS form is DCPS$DEFAULT.

Certain files, however, are considered system resources, and are shared between the DCPS and CPS products, and possibly other products. These shared resources are:

- *CPS$ANSI_FONTS.TLB*

  This is the library containing downloadable fonts that emulate LN03 or DEClaser font cartridges.

- Data type translators

  The DCPS product installs its translators using the same directory and file name structure that the CPS product used.

Secondary messages (those generated by other facilities such as RMS, and passed along by the DCPS product) retain the code of the facility that originated the message.

D.4 Startup File Converter

The conversion tool, CPS_TO_DCPS_STARTUP.COM, converts the startup file for the CPS software so that it uses the names from the DCPS product. This tool is described in Section 3.2.

The following table lists the CPS_Name and the corresponding DCPS_Name conversions.

CPS_Name	DCPS_Name
CPS$STARTUP	DCPS$STARTUP
CPS$EXECUTION_QUEUE	DCPS$EXECUTION_QUEUE
CPS$REQUIRED	DCPS$REQUIRED
CPS$GENERIC	DCPS$GENERIC
CPS_LIB	DCPS_LIB
CPS$DEVCTL	DCPS$DEVCTL
LPS$*queuename*_PARAMETER	DCPS$*queuename*_PARAMETER
CPS$*queuename*_STALL_TIME	DCPS$*queuename*_STALL_TIME
LPS$LAYUP	DCPS$LAYUP
DECprint Printing Services	DECprint Supervisor

The conversion tool does not change queue names or the structure of the queues.

D.5 Eliminating Generic Queues

DCPS software has the ability to automatically detect data types, so you may be able to reduce the number of generic queues or eliminate them altogether. Refer to Chapter 4 for more information on automatic data type detection.

D.6 Page Scaling

The DCPS product can scale the logical page image to fit the output sheet if the job provides the following parameters:

PAGE_SIZE=p,SHEET_SIZE=s

Note that *p* and *s* are different values.

The job assumes the parameter NUMBER_UP=1. With CPS, it was necessary to explicitly provide a NUMBER_UP parameter in order to trigger page scaling.

D.7 Layup for PS Level 2 Printers & Layup Fixes

The DCPS software layup facility supports PostScript Level 2 operators when connected to printers that implement PostScript Level 2. It also fixes or extends support for several Level 1 operators.

Level 1 PostScript programs produced by Macintosh and PC applications generally print better with the DCPS product than they did with the CPS product. Problems with CorelDraw and Macintosh programs have been fixed.

D.8 Layup Options on PRINT Command Line

With DCPS software, you can provide layup options directly with the LAYUP_DEFINITIONS parameter, or you can record those options in a .LUP file and provide that file name with the parameter. Providing the layup options on the PRINT command makes it possible to pass them with jobs to be printed on another system via the Distributed Queuing Services product. CPS V4.1 software offers only the .LUP file option.

See the *DECprint Supervisor for OpenVMS User's Guide* for information on expressing layup options in a layup definition file or as a PRINT parameter.

D.9 Page Sizes

In the CPS V4.1 product, the following page sizes did not exist or were not correctly interpreted. The DCPS product defines and interprets these correctly.

A6
C
D
7x9
7_envelope
10x14
11x14
PostCard

D.10 Selecting Separator Pages from Alternate Tray

To select job separator pages from an alternate tray using the DCPS software, define the following system logical:

```
$ DEFINE /EXECUTIVE_MODE /SYSTEM DCPS$queuename_SEPARATOR_TRAY number
```

Note that *number* is a valid tray number for the printer served by that queue, and is printer-specific. Refer to your printer documentation to obtain the correct value.

The following are the values for Compaq and DIGITAL printers:

Table D–1 Tray Number Values

Printer	Tray	Tray Number	Default	Optional
Compaq Laser Printer LN16				
	upper	0	♦	
	lower	1		♦
	multipurpose	3		♦

(continued on next page)

Table D–1 (Cont.) Tray Number Values

Printer	Tray	Tray Number	Default	Optional
Compaq Laser Printer LN32 and LNM40				
	multipurpose	0		
	tray 1	1	♦	
	tray 2	2		
	tray 3	3		♦
	tray 4	4		♦
	tray 5	5		♦
	envelope feeder	6		♦
DEClaser 1150 and 1152				
	multipurpose	0	♦	
	cassette[1]	1		♦
DEClaser 2150 and 2250				
	manual feed	0		
	lower	1	♦	
	upper[2]	2		♦
	power envelope feeder	3		♦
DEClaser 3250				
	multipurpose	0		
	upper	1	♦	
	lower	2		
	high capacity feeder[3]	3		

[1]If installed, becomes the default

[2]Duplex only

[3]A/A4 page sizes only

(continued on next page)

Table D–1 (Cont.) Tray Number Values

Printer	Tray	Tray Number	Default	Optional
DEClaser 3500				
	upper	0	♦	
	lower	2		♦
	multipurpose	3		
DEClaser 5100				
	multipurpose	0		
	upper	1	♦	
	lower	2		♦
DIGITAL Colorwriter 1000				
	upper	0	♦	
	lower	1		♦
DIGITAL Colorwriter LSR 2000 and 2000+				
	upper	1	♦	
	lower	2		♦
DIGITAL Laser Printer LN15 and LN15+				
	upper	0	♦	
	lower	1		♦
	multipurpose	3		♦
DIGITAL LN17ps and Laser Printer LN17+ps				
	main	0	♦	
	multipurpose	1		
	lower 1	2		♦
	lower 2	3		♦

(continued on next page)

Table D–1 (Cont.) Tray Number Values

Printer	Tray	Tray Number	Default	Optional
DIGITAL LN17ps and Laser Printer LN17+ps				
	envelope feeder	4		♦
DIGITAL Laser Printer LN20				
	multipurpose	1		
	upper	2	♦	
	lower	5		♦
DIGITAL Laser Printer LN40				
	upper	1	♦	
	middle	2		
	lower	3		
	LCIT	5		♦
DIGITAL Laser Printer LNC02				
	upper	1	♦	
	lower	5		♦
DIGITAL PrintServer 17 and 17/600				
	upper	1		
	lower	2		
DIGITAL PrintServer 20, 32, 32*plus* and 40				
	upper	1		
	lower	2		
	LCIT	3	♦	

(continued on next page)

Table D–1 (Cont.) Tray Number Values

Printer	Tray	Tray Number	Default	Optional
GENICOM microLaser 170				
see Compaq Laser Printer LN16				
GENICOM microLaser 210 and LN21				
	multipurpose	0		
	tray 1	1	♦	
	tray 2	2		♦
	tray 3	3		♦
	envelope feeder	6		♦
GENICOM microLaser 280 and LN28				
	multipurpose	0		
	tray 1	1	♦	
	tray 2	2		♦
	tray 3	3		♦
GENICOM microLaser 320 and 401				
see Compaq Laser Printer LN32				

D.11 Stopping Unreachable PrintServer

If the operator issues STOP/QUEUE/RESET, and the queue is connected to a DIGITAL PrintServer printer that is unreachable, the queue stops properly. This was not always the case with the CPS V4.1 software.

D.12 Overwriting First Line

In the CPS V4.1 product, the top line was overwritten if the record started with a form feed. This works correctly in the DCPS software.

D.13 Stall Timeouts

The CPS V4.1 software did not start the stall timer for directly-connected serial printers. The DCPS software starts the timer.

In the CPS V4.1 product, the default timeout for a stall message was one minute. This frequently resulted in "queue stalled" messages when the printer was processing a compute-intensive page (and was not really stalled at all). In the DCPS product, the stall timeout is four minutes.

D.14 Requeuing a Job

When a network error occurred while connecting to a printer, the CPS V4.1 software would requeue the job with the /HOLD attribute. The DCPS software requeues it without the /HOLD attribute.

D.15 Reading Stream Files

If a PostScript file has a record attribute of STREAM, STREAM_LF, or STREAM_CR, it is read in head1 mode. This allows the DCPS software to print very long stream records that the CPS software cannot print. Files of this type are sometimes written by PC communications programs.

D.16 Copies Start on New Sheets

When /COPIES=n is requested, and *n* is more than one, each copy starts on a new sheet, even when printing with NUMBER_UP or SIDES=2. This was not the case with PostScript jobs in the CPS V4.1 product.

D.17 Generic Queues Restarted

On shutdown, OpenVMS stops execution queues but not generic queues. As a result, when the system starts up again, the generic queues begin running even though they may have the wrong characteristics. When you start up generic queues in the CPS V4.1 product, you get warning messages saying that the queues are already running (as of OpenVMS V5.5). When the DCPS software starts up generic queues, it stops and then restarts those that are already running.

D.18 Proprinter Translator

The DCPS software contains a new Proprinter-to-PostScript translator not available in the CPS product. For general information on using the PROPRINTER data type, see the *DECprint Supervisor for OpenVMS User's Guide*.

D.19 DCPS and PATHWORKS Libraries

PATHWORKS for OpenVMS (Macintosh) creates its own device control library, MSAP$DEVCTL.TLB, and also puts its modules into the CPS library if there is one. It does not put them in the DCPS library. To rectify this, define DCPS_LIB as a search list that points to both the DCPS and PATHWORKS libraries. An example in DCPS$STARTUP.TEMPLATE shows how to do this.

D.20 Printing with Macintosh & PC Files

The DCPS software contains a new PostScript example file to improve printing of Macintosh and PC files on DIGITAL PrintServer printers.

D.21 Improved Color Function for Colormate PS

The color transfer function of the Colormate PS has been changed to avoid the problems of gray scale images that are muddy or brown, and natural images with poor flesh tones. The Colormate PS now runs prints with a new default color transfer function to provide better gray scale images and natural flesh tones. Consequently, you may notice the following changes when you print on the Colormate PS:

- Graphic images may not seem as brilliant.
- Grays will be accurately rendered as gray and not brown.
- Some pictures may appear to have less yellow and/or more blue in them.

D.22 Printing Security Messages

The DCPS product provides a new example file:

```
SYS$COMMON:[SYSHLP.EXAMPLES.DCPS]CONFIDENTIAL.PS
```

This file shows how to redefine the showpage operator to write “Confidential” at the top and bottom of each page as an overlay (that is, after the contents of the page have been imaged).

E

Ordering Additional Documentation

This appendix lists Compaq software documents and documentation kits associated with PostScript printers, and their respective order numbers.

The asterisk (*) in an order number stands for the latest version of the document or kit.

PrintServer Software

Software Document	Part Number
Digital UNIX	QA-0V9AJ-GZ
HP-UX	QA-0V9AD-GZ
IBM-AIX	QA-0V9AE-GZ
IRIX	QA-0V9AQ-GZ
OpenVMS	QA-0V9AA-GZ
Solaris	QA-0V9AK-GZ
SunOS	QA-0V9AC-GZ
ULTRIX	QA-0V9AB-GZ
Windows	QA-0V9AH-GZ

Note

PrintServer Software is being retired in 2001. This documentation may no longer be available.

PostScript Programming Documentation

- *PrintServer Printers PostScript Level 2 Programmer's Supplement* (order number: EK–PRTPL–PS)
- *PostScript Printers Programmer's Supplement* (order number: AA–HL84*–TE)

DECprint Supervisor Software for OpenVMS

The following is the DECprint Supervisor Software for OpenVMS documentation.

Complete documentation kit (order number: QA–09NAA–GZ)

- *DECprint Supervisor for OpenVMS Software Installation Guide*
- *DECprint Supervisor for OpenVMS System Manager's Guide*
- *DECprint Supervisor for OpenVMS User's Guide*

DIGITAL ANSI-Compliant Level 3 Printing Protocol

The following is the DIGITAL ANSI-Compliant Level 3 Printing Protocol documentation.

Documentation kit (order number: QA–YNCA*–GZ)

- *DIGITAL ANSI-Compliant Printing Protocol Level 3 Programming Reference Manual*
- *DIGITAL ANSI-Compliant Printing Protocol Level 3 Programming Supplement*

Index

A

Accounting fields
  filled with zeros by job controller, 9–3
  left blank by job controller, 9–3
  supplied by DECprint Supervisor, 9–1
  supplied by job controller, 9–2
Accounting utility, 9–1
Automatic data type detection
  overview, 1–2
  solving problems with, 11–17
  specifying a default text data type for, 4–3

B

Baud rate limitations, 2–8
Bi-directional communication
  requirement for, 2–2
Burst page, 6–1

C

Changing the character set for PCL and Proprinter files, 7–9
Character sets, changing for PCL and Proprinter files, 7–9
Commands
  See Print queue commands
  DELETE/ENTRY, 5–2
  SET ENTRY, 5–4
  SHOW ENTRY, 5–1
  SHOW QUEUE, 5–1, 5–5
  START/QUEUE, 5–6
Commands (cont'd)
  START/QUEUE/MANAGER, 5–9
  STOP/QUEUE/MANAGER, 5–9
Conventions, xiii
Converting queues from DECprint Printing Services, 3–1
CPAP
  Also see TCP/IP
  definition of, 3–4
  specifying network address, 3–6
CPS, D–1
Custom setup modules, 7–7

D

Data type detection, 1–2
DCPS$DEFAULT form, 8–5
DCPS$STARTUP.COM
  creating, 3–1
  specifying the device name in, 3–5
DEClaser font emulation, 7–13
DECnet
  specifying PrintServer network address, 3–6
DECprint Printing Services, converting from, 3–1
DECprint Printing Services software, D–1
DECprint Supervisor
  features, 1–1
DECprint Supervisor software overview, 1–3
Default form, 8–5
Default queue
  parameters, 3–7
    syntax errors handling, 11–16
    syntax for, 3–7

Default queue (cont'd)
qualifiers, 3–8
Default text data type, 4–3
Defining
print queue qualifiers, 3–8
DELETE/ENTRY command, 5–2
DELETE/FORM command, 8–4
Deleting
forms, 8–4
print jobs, 5–2
Device control library, 1–5, 7–1
Device name, specifying in
DCPS$STARTUP.COM, 3–5
Displaying
print job status, 5–1
queues, 5–5
Documentation
Compaq/DIGITAL PostScript printers, E–1

E

Error messages
for LAT connected printers, 11–11
Error page, 6–7
Ethernet use, serial printers, 2–3
Execution queues, 3–2
specifying printer device name in, 3–5

F

File burst page
specifying, 6–4
File error page, 6–7
File flag page
specifying, 6–4
File separation pages
specifying, 6–4
File trailer page
specifying, 6–4
Flag page, 6–1
Font cartridge emulation, 7–13
Fonts
downloading and deleting, C–1
/FORM qualifier
with DELETE, 8–4
with SET/QUEUE, 8–2
with START/QUEUE, 8–2
Forms
associating with queues, 8–2
default, 8–5
deleting, 8–4

G

Generic queues, 3–14
defining, 3–14

H

Hardware requirements
other printers, 2–2

I

IP_CPAP
See CPAP
IP_RAWTCP
See Raw TCP/IP

J

Job burst page
specifying, 6–2
Job flag page
specifying, 6–2
Job log page
description of, 6–6
specifying, 6–6
Job not printing, 11–14
Job trailer page
specifying, 6–2

L

LAT
port characteristics required for printing, 2–5
terminal server, 2–4

LAT protocol file, editing the, 2–7
LAT startup file, 2–4
Library search list for setup modules, 7–5
Login dialog, reducing for serial printers, 11–13
Log page, 6–1
LPD, not supported, 3–4
LPS$$UNRECOGNIZED, 7–15

M

Messages
  network error, 11–11
Modifying
  DCPS symbiont behavior, 3–10
  execution queue behavior, 3–10
  print job attributes, 5–4
  queues, 3–15
Multistreamed symbiont process
  changing DCPS environment with, 3–11
  running DCPS as, 3–10

N

Network printers
  troubleshooting, 11–7

O

OPCOM messages, 11–1
Other printers
  hardware requirements, 2–2

P

Page counters, mechanical, 9–4
PCL files
  changing character set for, 7–9
Persistent resources, loading, 7–8
Port characteristics, 2–5
Postinstallation requirements
  for PrintServer printers, 2–11
PRINT command, 1–4
  /BURST qualifier, 6–6
  /FLAG qualifier, 6–6
  MESSAGES parameter, 6–6
PRINT command (cont'd)
  /TRAILER qualifier, 6–6
Printer documentation, E–1
Printer name, setting, 2–10
Printers
  troubleshooting newly installed, 11–2
Printers, serial use on Ethernet, 2–3
Printer-specific information, 10–1
Printer startup file
  defining execution queues in, 3–2
  defining generic queues in, 3–14
Printing system management commands, A–1
Print job attributes, changing, 5–4
Print jobs
  characteristics, A–3
  deleting, 5–2
  holding, 5–3
  printer state is unknown, 5–6
  releasing, 5–3
Print queues
  commands, A–1
  customizing execution queue behavior, 3–10
  displaying, 5–5
  execution, 3–2
  generic, 3–14
  interrupting busy printers when job starts, 3–12
  parameters
    default, 3–7
    syntax, 3–7
    syntax errors, 11–16
  qualifiers, 3–8
  running DCPS as a multistreamed process, 3–10
  running multistreamed, 3–11
  stalled, 5–8
  starting, 5–6
  suppressing PostScript synchronization when a job starts, 3–12
  suppressing the OPCOM message "User Name Not Found", 3–13
  testing the printing system, 3–16
  types of, 3–1

PrintServer printers
postinstallation requirements, 2–11
specifying DECnet network address, 3–6
specifying TCP/IP network address, 3–6
troubleshooting procedures for, 11–14
Print symbiont
device control library for, 1–5
Proprinter files
changing character set for, 7–9
PSM$ANNOUNCE, 6–6

Q

Qualifiers, print queue, 3–8
Queue
See Print queue
Queue logical names, 11–5
Queue manager
starting, 5–9
stopping, 5–9
Queue parameters
default, 3–7
defaulting order of, 3–7
redefining, 3–7
syntax for, 3–7
Queue structure
of execution queues, defining, 3–2
of generic queues, defining, 3–14

R

Raw TCP/IP
Also see TCP/IP
definition of, 3–4
specifying network address, 3–4
specifying TCP port number, 3–4
Requirements
for PrintServer printers on TCP/IP, 2–11
Resources
persistently loading, 7–8

S

Search list for device control libraries, 7–5
Separation pages
adding system message to, 6–6
definition of, 6–1
enabling for file, 6–4
enabling for job, 6–2
Serial printers
eliminating login dialog on, 11–13
Serial printers, on Ethernet, 2–3
SET ENTRY/HOLD command, 5–3
SET ENTRY/RELEASE command, 5–3
SET ENTRY command, 5–4
SET PRINTER, A–3
Setup modules, 7–7
customized, 7–7
SHOW ENTRY command, 5–1
SHOW QUEUE command, 5–1, 5–5
Stalled print queue, 5–8
START/QUEUE/MANAGER command, 5–9
START/QUEUE command, 5–6
Starting
print queues, 5–6
queue manager, 5–9
Startup file, creating, 3–1
STOP/QUEUE/MANAGER command, 5–9
Stopping
queue manager, 5–9
Supported printers
using, 2–9
Symbiont, 1–4
System startup file, editing the, 3–15

T

TCP/IP
Also see CPAP
Also see Raw TCP/IP
requirements, 2–11
Telnet, not supported, 3–4
Text data type default, 4–3

Third-party printers
unsupported, 7–15
Trailer page, 6–1
Translators, 1–6
Troubleshooting procedures
for a printer in a network environment, 11–7
for incorrectly translated files, 11–17
for jobs not printing, 11–1
for newly installed printers, 11–2
for PrintServer printers, 11–14
for queue default parameters, 11–16
for slow printing, 11–15
for stopped printers, 11–5
when jobs are not printing, 11–14
when layup definition files are not found, 11–16

U

Unrecognized printers, 7–15
Unsupported printers, 7–15